

Indian marine parks -Problems and challenges

Introduction

Diversity or variety, of plants and animals and other living things in a particular area or region. There are 34 global biodiversity hotspots in world (India-4). One of the world's twelve mega diversity countries account for 70% of the world's biological diversity. Man has been depending on the nature's biodiversity for his survival. The over dependence of man on nature is posing serious threats to the biodiversity of earth. Worldwide marine environments and fisheries are in decline and recent scientific studies have warned about the dire situation facing our marine environments

INTERNATIONAL AGREEMENTS

To ensure that international trade in specimens of wild animals and plants does not threaten. Facilitate international communication, and promote the peaceful uses of the seas and oceans. Conservation of their living resources, and the study, protection and preservation of the marine environment. Conservation of biodiversity and sustainable use of biological resources

INDIAN LEGISLATION

Wild Life (Protection) Act, 1972- Enacted to provide for the protection of Wild animals, birds and plants

The Water Act, 1975- To ensure the prevention and control of water pollution

FISH DIVERSITY IN INDIA

- 2,358 fish sp (Source : INDFISHDATABASE, 2011, NBFGR)
- Freshwater – 877 sp.
- Brackish water – 113 sp.
- Marine – 1,368 sp.
- Home for 11.72 % of global fish biodiversity.

- Max. no of endemic fresh water finfish – 27.8 % of native fish fauna.

NATIONAL PARK - IUCN - CHARACTERISTICS

- Large natural or near natural areas
- set aside
- to protect large-scale ecological processes,
- along with the complement of species and ecosystems characteristic of the area,
- which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities.
- Minimum size of 1,000 hectares within zones in which protection of nature takes place. 166 National Parks in India

Advent of Marine National Parks

- ❖ Protection measures first initiated in India in 1967, pre-dating the existence of any specific legal frameworks for protected areas.
- ❖ Initially Point Calimere Wildlife Sanctuary in Tamil Nadu, set up to protect the wetland habitat of waterfowl.
- ❖ Lead the creation of other national parks and sanctuaries in marine and coastal areas created under the WLPA of 1972 (amended in 2002 and 2006)
- ❖ Designed to protect flora, fauna and associated habitats.

Marine national parks

A marine park is a park consisting of area of sea (or lake) sometimes protected for recreational use, but more often set aside to preserve a specific habitat and ensure the ecosystem is sustained for the organisms that exist there.

Marine parks are like national parks but instead of protecting scenic landscapes or biologically important areas of land, marine parks protect scenic and biologically important areas of ocean and coastline (usually to high water mark) including,

- Inshorewaters
- Offshorewaters
- Reefs
- Rockyshores
- Mangroves
- Mudflats
- Estuaries
- Beaches
- Islands and
- allmarine plants and animals within thesehabitats.

Marine Protected Areas

In India, there are about 31 Marine Protected Areas (MPA) primarily in marine environments, which cover a total area of 627.2 Km² with an average size of 202.1 Km². In order to protect the ecologically important areas Government of India initiated action through the state governments to create a network of MPAs under Wildlife (Protection) Act, 1972. Recognizing ecological values and importance for biodiversity conservation, the GOI has notified three Biosphere Reserves in 1989 in marine areas viz: Great Nicobar Biosphere Reserves in Andaman and Nicobar (885 Km²), Gulf of Mannar Biosphere Reserve (10,500 Km²) in Tamilnadu and Sundarbans Biosphere Reserve (9,630 Km²) in West Bengal (Singh, 2003).

Protected Marine Organisms

Some of the marine resources like sea weeds, sponges, gorgonians, 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 achieve 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.

It is seen that there is a tendency for intensive exploitation of exportable commodities, but country cannot lose sight of the need to protect biodiversity and meet domestic requirements in its bid to increase foreign exchange earnings. Ecosystem goods from the marine realm included the finfishes crustaceans, molluscs and seaweeds. The important flora and fauna falling to the two major kingdoms such as Animal and Plant Kingdom recorded from the Indian region and their present status are discussed below.

Whale shark – *Rhincodon typus*

Whale shark is huge, sluggish, pelagic filter-feeder, often seen swimming on the surface. Viviparous and gravid female have 300 young ones of several stages of development (Raje et al. , 2002).

Dolphins

The species diversity of dolphins in India is one among the richest in the world. A total of five species dolphins were recorded from our seas. Important species are *Stenella longirostris* (Spinner dolphin), *Sousa chinensis* (Humpback dolphin), *Delphinus delphis* (Common dolphin), *Tursiops truncatus* (Bottlenose dolphin) and Risso's dolphin (*Grampus griseus*).

Whales

Whales constitute the most dominant groups of marine mammals. They usually occupy in the temperate and polar oceanic waters, they migrate to tropical waters for breeding and avoid extreme climatic conditions during certain seasons. Whales are classified into Odontoceti (toothed whales) and mysticeti (baleen whales). All the Cetaceans are included in the list of protected animals.

A total of about 10 species have been reported from Indian seas. They are *Indopacetus pacificus* (Longman's Beaked whale), *Balaenoptera borealis*, *Balaenoptera musculus*, *Balaenoptera acutorostrata*, *Pseudorca crassidens*, *Physeter macrocephalus*, *Ziphius cavirostris* and *Balaenoptera* sp.

Sea Cow

The sea cow, *Dugong dugon* inhabits in the Gulf of Mannar and Palk bay area and is included in the List of protected animals as per the Wildlife (Protection) Act, 1972 Schedule I.

Turtles

Five species of sea turtles were reported in India which include Olive Ridley (*Lepidochelys olivacea*), Green Turtle (*Chelonia mydas*), Leatherback (*Dermochelys coriacea*), Hawksbill (*Eretmochelys imbricata*) and Loggerhead (*Caretta caretta*). All the five species were included in the list of protected animals as per the Wildlife (Protection) Act, 1972 Schedule I.

Crocodiles and Gharial

The Crocodile species like *Crocodilus porosus*, *Crocodilus palustris* and Gharial (*Gravialis gangeticus*) are protected under the Wildlife (Protection) Act, 1972 Schedule I.

Marine Molluscs

A total of 3271 species of molluscs distributed among 220 families and 591 genera, of which 1900 are gastropods, 1100 bivalves, 210 cephalopods, 41 polyplacophora and 20 scaphopods.

Among these 8 species of oysters, 2 species of mussels, 17 species of clams, 3 species of pearl oysters, 3 species of giant clams, 1 species of windowpane oyster and gastropods such as Sacred Chank, Trochus, Turbo and 15 species of Cephalopods are exploited from the Marine sector

CITES in India

International trade in all wild fauna and flora in general, and the species covered under CITES is controlled jointly through the Wild life (Protection) Act 1972, Amendment Act, 2002, the Foreign Trade (Development regulation) Act 1992, the Foreign Trade Policy of Government of India and Customs Act, 1962. The Director of Wildlife Preservation, Government of India is the Management Authority for CITES in India.

Import of animals and their parts and products for zoological parks and circuses or for research may be permitted subject to the provisions CITES and on the recommendations of the Chief Wildlife Warden of the States and Union Territories under license from Director General of Foreign Trade (DGFT). Import of wild

animals as pests in the personal baggage of a passenger is also subject to the provisions of CITES in accordance with the Ministry of Commerce's rules.

All imports and exports of wild animals including marine species and plants are permitted only through the Customs points at Mumbai, Kolkata, New Delhi, Chennai, Cochin, Amritsar and Tuticorin according to the rule. Two essential conditions governing the import and export of Wildlife and the derivatives are (i) compliance with the provisions of CITES (ii) inspection of the consignments by the Regional Deputy Directors of Wildlife Preservation at the Customs points. In case of items covered under CITES, an endorsement is made on the relevant CITES export permit. All marine species that have been included in the Schedules of the Wild Life (Protection) Act, 1972 are not permitted for export.

Conclusion

The exploited marine fisheries resources from the coastal area have been 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, introduction of highly sophisticated fishing gadgets, need management measures and conservation of marine biodiversity to maintain sustainable use of marine

biodiversity. 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, reduces the discards of the low value fish, protection of spawners, implementation of reference points and notification of marine reserves for protection and conservation