

# **NATIONAL AND INTERNATIONAL BIOSPHERE RESERVES AND THEIR IMPORTANCE**

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# **NATIONAL AND INTERNATIONAL BIOSPHERE RESERVES AND THEIR IMPORTANCE**

# **BIOSPHERE RESERVES**

A biosphere reserve is a unique concept which includes one or more protected areas and surrounding lands that are managed to combine both conservation and sustainable use of natural resources.

# BIOSPHERE RESERVES

- A biosphere reserve is an international conservation designation given by UNESCO under its programme on Man and the Biosphere (MAB).
- 529 biosphere reserves in 105 countries
- Biosphere reserves are a special category of protected areas of land and/or coastal environments, where in people are an integral component of the system
- The concept of Biosphere Reserves was launched in 1975 as a part of the UNESCO's Man and Biosphere Programme dealing with the conservation of ecosystems and the genetic resources contained therein.

# MARINE BIOSPHERE RESERVES

- Marine Reserves are those areas which are closed to all fishing and have a great potential as conservation tool
- Protection leads to rapid increase in biomass, abundance diversity and average size of the exploited organisms
- Marine reserves can be placed in feeding, breeding or migratory habitats

# FUNCTIONS OF BIOSPHERE RESERVES

- **Conservation:** of landscapes, ecosystems, species and genetic resources. It also encourages traditional resource use
- **Development:** to promote economic development, which is culturally, socially and ecologically sustainable.
- **Scientific research, Monitoring & Education:** To provide support for research, monitoring, education and information exchange related to local, national and global issues of conservation and development.

# NATIONAL LEVEL RESERVES

In India there are 14 Biosphere Reserves.

Marine Biosphere Reserves:

- Gulf of Mannar- Tamil Nadu
- Sundarbans- West Bengal
- Great Nicobar- Andaman & Nicobar
- Bhitarkanika- Orissa
- Gulf of Kutch- Gujarat

# GULF OF MANNAR (GOM)

## Flora & Fauna:

- Over 3,600 species of flora and fauna
- 117 hard coral species.
- 21 islands between Tuticorin & Dhanuskodi announces as GOM marine National park in 1986.
- 10km buffer zone were declared a Biosphere Reserve in 1989.

# SUNDARBANS

- Its got inscripted as a UNESCO world heritage in the **1997**.
- It has mudflats, salt tolerant mangroves.
- 500 Bengal tigers, 30,000 spotted deer in this area.
- A total of 334 plant species are present.
- *Heritiera fomes* is a dominant sp.
- About 120 sp. of fishes, 270 sp. of birds, 42 sp. of mammals, 35 sp. of reptiles and 8 sp. of amphibian.

# GULF OF KUTCH

- Established in 1980 & 1982.
- Found in west coast of India.
- Coral reefs, Mangroves, *Avicenia marina*, *A.alba*, *A.officinalis*, *R.mucronata*, *Ceriops tagal*, *Aegiceros corniculata*.
- Birds like painted storks, herons, egrets, Ibises, Spoonbills, Flamingoes, ducks, terns gills & little cormorants and stiws.
- Seagrass, seaweeds, Green sponge, coral sponge, puffer fish, turtles, dolphins, crabs, prawns, sea anemones, jelly fishes, starfishes, octopus etc.,

# GULF OF KUTCH

- 37 sp – hard & soft corals
- 70 sp of sponges
- 150 – 200 sp fishes
- 27 sp prawns
- 30 sp crabs
- About 200 sp of molluscs
- 3 sp sea turtles
- 3 sp of sea snakes
- 3 sp of marine mammals
- 94 sp. water birds
- 108 sp of brown, green & red algae

# BHITARKANIKA

- Biosphere area 650 sq km.
- Located in Baleshwar District of Orissa; 190 km from Bhubaneswar
- Flora: Mangroves, Fauna: Salt water crocodile, sea turtle-Olive ridley turtles, Sea eagle, fish eagle
- 330 of ascidians & 300 – 500 of bryozoans
- 215 sp birds, 2195 sp of plants, 17 of sea snakes,
- More than 1,500 sp. fishes, 125 sp of shark, ray
- 5000 sp of molluscs-Giant clam, nudi branches-Cone snails

# GREAT NICOBAR BIOSPHERE RESERVE

The Reserve was declared in **January 1989**.

It incorporates two National parks of India, which were gazetted in 1992:

The larger **Campbell Bay National Park** on the northern part of the island, and **Galathea National Park** in the southern interior.

# GREAT NICOBAR BIOSPHERE RESERVE

The reserve is home to many species of plants and animals, often endemic to the Andaman and Nicobars biographic region.

Species of fauna in the reserve include: (*Megapodius nicobariensis*, a **megapod bird**),

The **Edible-nest Swiftlet** (*Aerodramus fuciphagus*),

The **Nicobar Long-tailed Macaque** (*Macaca fascicularis umbrosa*),

**Saltwater crocodile** (*Crocodylus porosus*),

**Giant Leatherback Sea Turtle** (*Dermochelys coriacea*), , ,

**Reticulated python** (*Python reticulatus*) and the **giant robber crab** (or coconut crab, *Birgus latro*).



**megapod bird**



**Edible-nest Swiftlet**



**Nicobar Long-tailed Macaque**



**Giant robber crab**



**Saltwater crocodile**



**Leatherback Turtle**



**Reticulated python**



# **INTERNATIONAL BIOSPHERE RESERVES**

# AUSTRALIA'S GREAT BARRIER REEF

- It contains about 2,800 separate reefs & 900 islands along 2600 km of coastline in an area of 3,50,000 sq km.
- It is setup in 1975.
- Green sea turtle, dolphin, porpoises, dwarf minke whale, humpback whale, dugongs, seagrass, Halophila, Halodule.

# AUSTRALIA'S GREAT BARRIER REEF

30 species of whales, dolphins, and porpoises have been recorded in the Great Barrier Reef.

6 species of sea turtles come to the reef to breed – the green sea turtle, leatherback sea turtle, hawksbill turtle, loggerhead sea turtle, flatback turtle, and olive ridley.

Around 125 species of shark, stingray, skates live on the reef.

5,000 species of mollusc have been recorded on the reef, including the giant clam and various nudibranchs and cone snails.

49 species of pipefish and 9 species of seahorse have been recorded

215 species of birds (including 22 species of seabirds and 32 species of shorebirds) are attracted to the reef or nest or roost on the islands

# AUSTRALIA'S GREAT BARRIER REEF

The islands of the Great Barrier Reef also support 2,195 known plant species; three of these are endemic.

17 species of **sea snake** live on the Great Barrier Reef.

More than 1,500 species of fish live on the reef, including the **clownfish** and several species of **snapper** and **coral trout**.

There are at least 330 species of **ascidians** found on the reef system

Between 300-500 species of **bryozoans** are found on the reef system.

400 species of corals, both **hard corals** and **soft corals** are found on the reef

500 species of marine algae or **seaweed** live on the reef.

# SAFARI MARINE PARKS IN EAST AFRICA

- Found in Kenya
- Corals
- Set on 40 hectares of land with breathtaking natural surroundings at the cultural centre of Bali, Gianyar, Bali Safari and Marine Park is extremely active in assisting the protection and conservation of endangered species that are constantly losing their habitat.
- This includes helping scientists by carrying out research on many different wild animals conservation projects.
- Bali Safari & Marine park also runs conservation and education campaigns and other extension activities.

# EL NIDO, PALAWAN RESERVE-Philippines

- It is about 420 kilometers southwest of **Manila**, and about 238 kilometers northeast of Puerto Princesa, Palawan's capital.
- The municipality, covering a land area of 465.10 KM<sup>2</sup> in the northernmost tip of mainland Palawan, is bordered by the **Linaoacan Strait** in the north, the **Sulu Sea** in the east, and the **South China Sea** in the west.
- It is composed of 45 islands and islets, each has its own unique geological formations. The highest peak is at Cadlao Island, towering up to 640 meters above sea level.

# EL NIDO, PALAWAN RESERVE

- In 1984, the Ministry of Natural Resources issued the establishing a 360-square kilometer maritime area in **El Nido** as a turtle sanctuary.
- In 1991, the rest of the **Bacuit Bay**, including its island and islets, was proclaimed by the Philippine government as a marine reserve.
- In 1998, its status was elevated to that of a protected area, and it included even the terrestrial ecosystem of El Nido and portions of Taytay.

# MATANG RESERVES-Malaysia

- A large expanse of mangrove forest situated in a huge bay stretching from **Kuala Gula** in the north to **Pengkalan Baharu** in the south.
- The reserve includes 34,769 ha of productive forest and 5,942 ha of unproductive forest.
- Some 95% of the mangroves are tidal swamp dominated by **Rhizophoraceae**, with considerable local variation in quality.
- Some seven major estuaries divide the mangrove areas, which are further dissected by numerous other rivers and waterways. The water is brackish and at low tide is less than 6m deep.

# MATANG RESERVES

- There are some small patches of forested dry ground inside the mangroves.
- There are five fishing villages within the forest reserve, the rest of the mangroves being more or less uninhabited.
- Two mangrove islands, **Pulau Kelumpang** and **Pulau Terong**, have permanently inundated lakes of great importance for feeding herons, storks and shorebirds.

# LIGURIAN SEA CETACEAN SANCTUARY

- Marine protected Area, for protection of marine mammals
- It covers 84,000 km<sup>2</sup>
- Located in Ligurian basin of the Mediterranean sea (Italian river)

# PAPAHANAUMOKUAKEA MARINE NATIONAL MONUMENT

- Largest marine protected area in the world
- Found in **Hawaii, USA**
- 7,000 sp
- Prominent species including-Green sea turtle, endangered Hawaiian monk seal, sea birds, Laysan Albatross.

# **TUBBATAHA REEF MARINE PARK PHILIPPINE**

- **Covers 33,200 ha, including the North and South Reefs.**
- **It is a unique example of an atoll reef with a very high density of marine species; the North Islet serving as a nesting site for birds and marine turtles.**

# MARINE PARK, BROOKLYN

- **Marine Park, Brooklyn** is located in the **borough of Brooklyn** in **New York City**.
- Its 798 acres (3.2 km<sup>2</sup>) surround the westernmost inlet of Jamaica Bay.
- Most of the land for Marine Park, Brooklyn was donated to New York City to be turned into public park land by the Whitney family in 1920 and by and Alfred T. White, who jointly donated 150 acres (0.61 km<sup>2</sup>) in 1917.

# **MARINE PARK, BROOKLYN**

- The park is mainly a fertile salt marsh which is supplied with freshwater from Gerritsen Creek.
- Marine Park, surrounded by the eponymous neighborhood, consists of recreational park areas and the Salt Marsh Nature Center, where horseshoe crabs and oyster toadfish can be found.