

Environment



Sample topic · Mangroves & Coral Reefs

Mangroves

A mangrove is a shrub or small tree that grows in coastal saline or brackish water. The term is also used for tropical coastal vegetation consisting of such species.

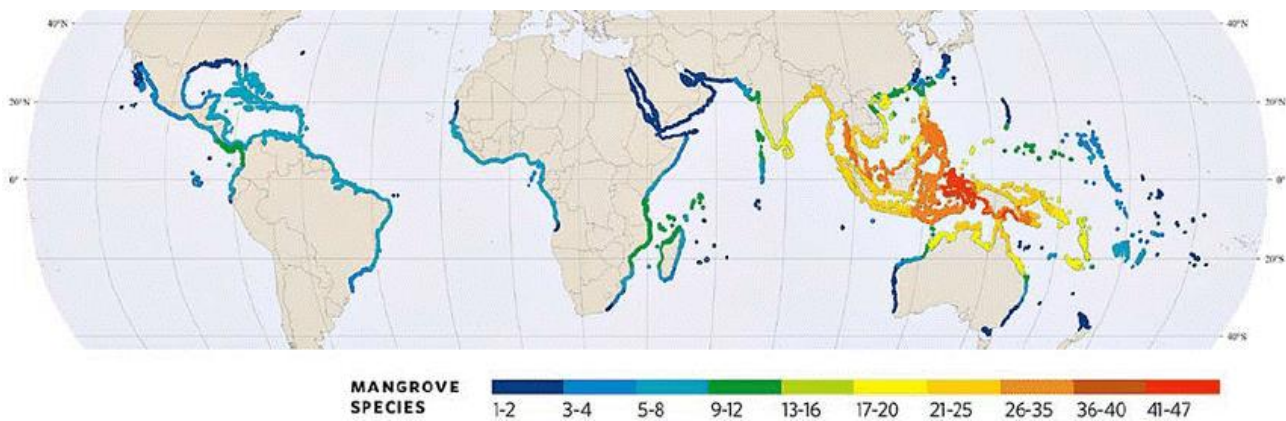
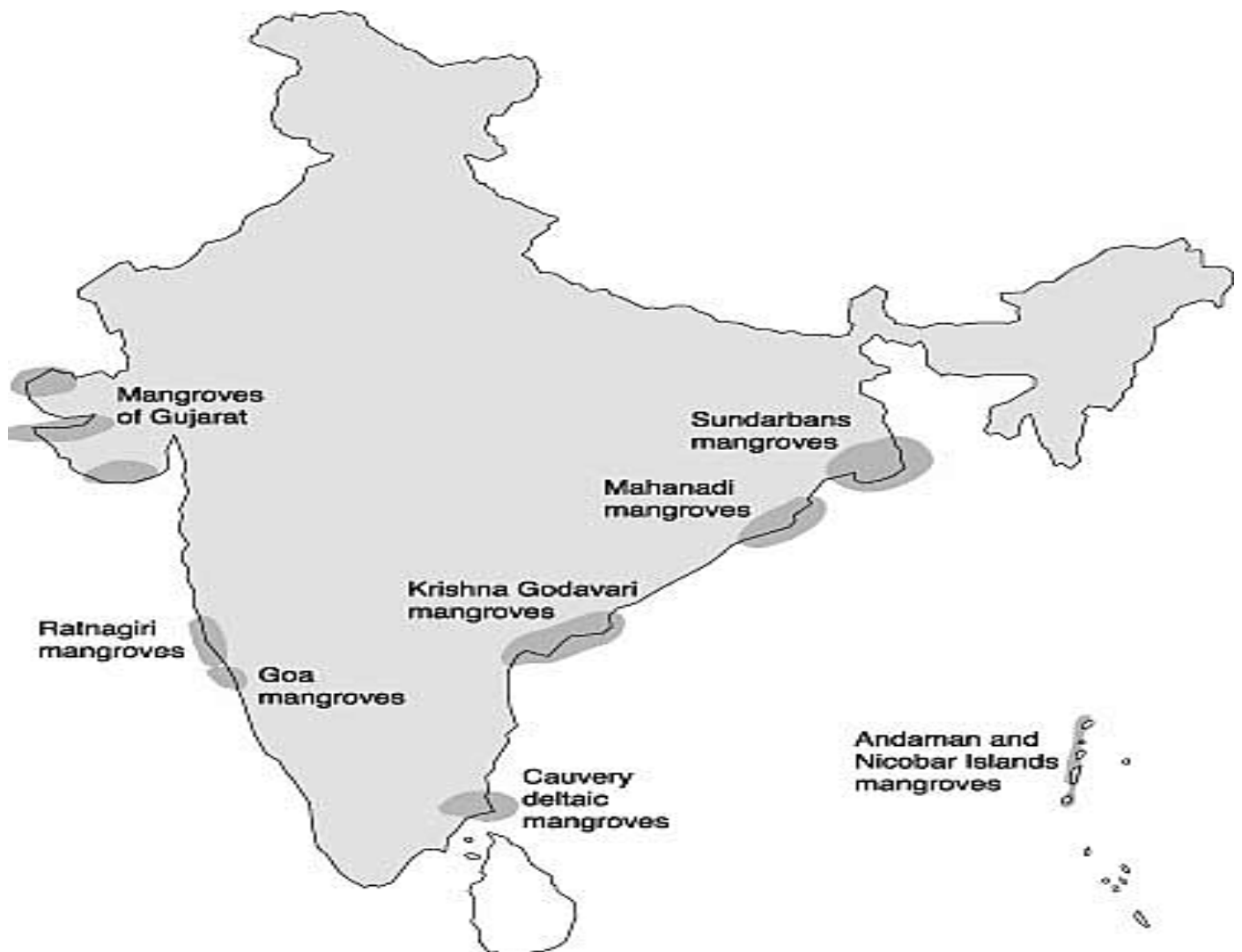
Mangroves are salt-resistant and heat-resistant plant groups found in tropical and subtropical intertidal zones around the world.

Mangroves are key habitats for coastal biodiversity. Many marine species, including shrimp, crabs, and fish, use mangroves as nursery habitat.

Characteristics of Mangroves

- Mangroves are part of the Littoral Forest ecosystem.
- Mangroves are found primarily between the latitudes of 25° N and 25° S in the tropics and subtropics all over the world.
- Mangroves have a complicated salt filtering system and a complex root system.
- Mangrove forest trees typically grow to be 8-20 meters tall.
- Mangroves have special roots called breathing roots or pneumatophores that collect oxygen from the atmosphere.
- Because the oxygen content in the soil is low in the mangrove habitat, the root system absorbs oxygen from the atmosphere.
- Mangroves survive in hostile conditions such as excessive salt, muddy water, low oxygen levels, high temperature and high water tides
- Mangrove Forest have viviparity mode of reproduction meaning tree seeds germinate within the tree before falling.
- Mangroves are highly productive ecosystems. They are usually evergreen woods that thrive in tropical and subtropical climate, sheltered low lying beaches, estuaries, mudflats, tidal creeks, backwaters, marshes, and lagoons.
- *Avicennia officinalis*, *Rhizophora mucronata*, *Sonneratia alba*, *Avicennia alba*, *Bruguiera cylindrica*, *Heritiera littoralis*, *Phoenix paludosa*, and *Morinda citrifolia* are all important species of mangrove forest in India.

Mangroves



Mangroves

Mangroves for Future Initiative

It is a unique partner led initiative for promoting investment in coastal ecosystem. It is led by IUCN and UNDP. It was launched in 2006 after Indian Ocean Tsunami. Its objective is conservation, restoration and sustainable management of coastal ecosystem as a natural infrastructure.

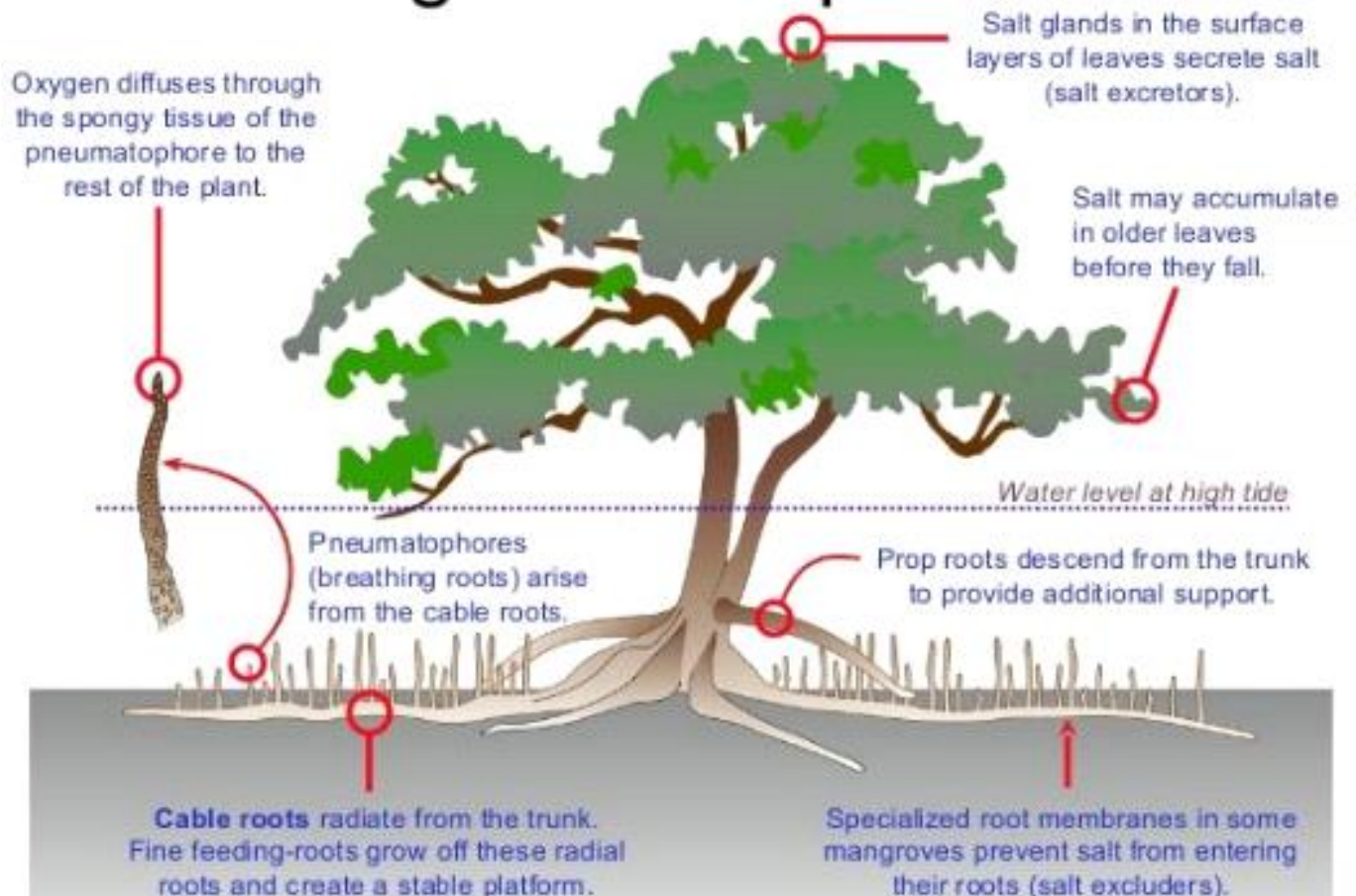
CRZ Rules

They also aim at protecting the coastal ecosystem.

Some Facts:

1. As per Indian State of Forest Cover Report 2021, mangrove cover in the country has increased by 17 sq km.
2. Maximum Increase in mangrove cover is observed in Odisha (8 sq km) followed by Maharashtra (4 sq km) and then Karnataka (3 sq km)

Mangrove Adaptations



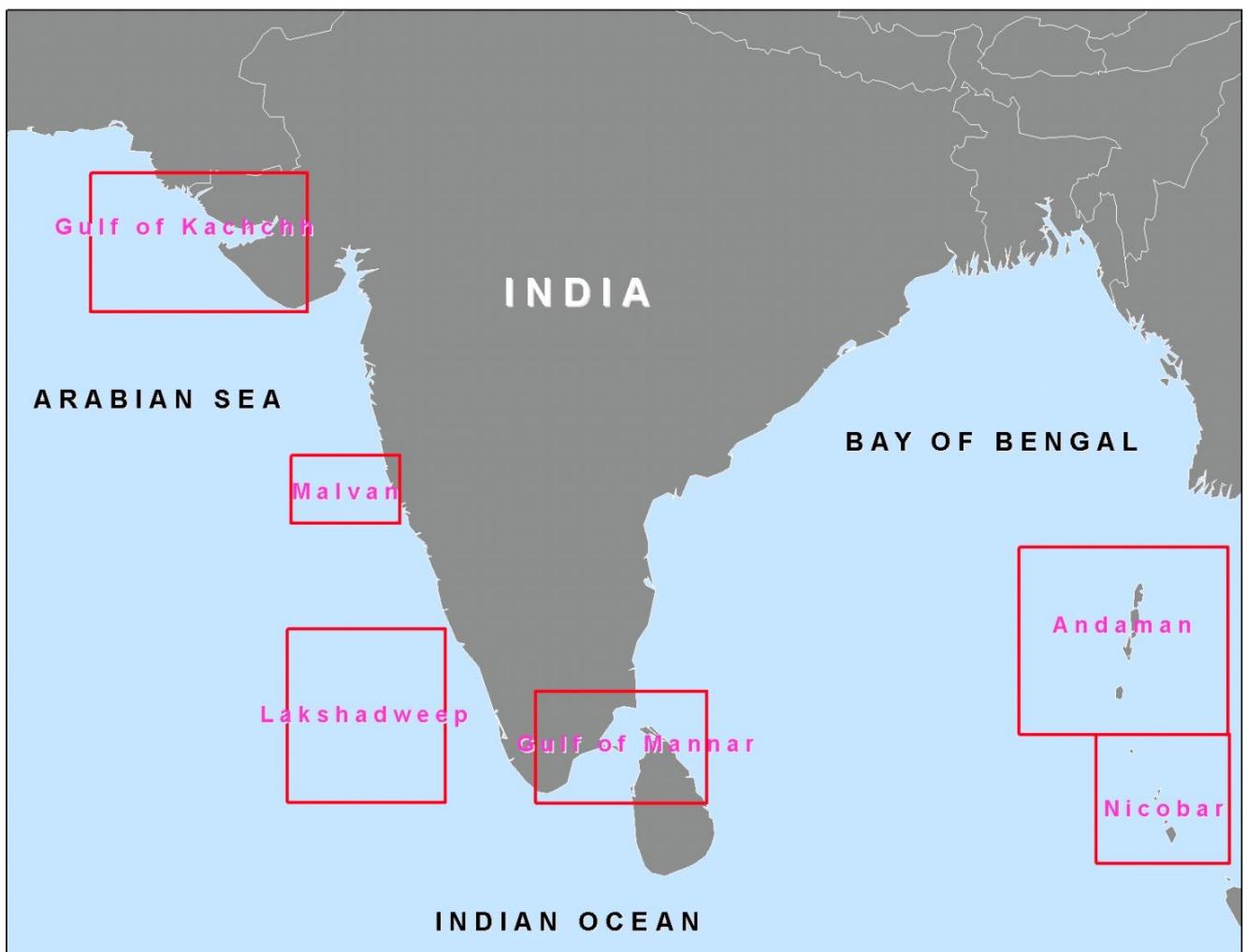
Corals

They are the most **biologically diverse ecosystems** of the planet. They are formed when Coral polyps, the animals primarily responsible for building reefs, develop a **symbiotic relationship** with photosynthetic algae called zooxanthellae, which live in its tissues.

The coral provides a protected environment and the compounds zooxanthellae needs for photosynthesis. In return, the algae produce carbohydrates that the coral uses for food, as well as oxygen. The algae also help the coral remove waste.

Favourable Conditions for Formation

- Warm tropical oceans with minimum temperature of 20 degree (30 degree north and 25 degree south latitudes)
- Oceanic water free of sedimentation.
- Transparent parts of ocean bodies.
- Relatively low salinity ocean bodies



Corals

Threats to Coral Reefs

- Ocean Acidification
- Sea Level Rise
- Global Warming
- Destruction of Habitats
- Pollution
- Overfishing
- Cyclones
- Invasive Species
- Diseases like White band disease, Yellow band diseases, etc.

Coral Reefs Protection

- Global Fund for Coral Reef Protection- \$500 million
- CRZ Rules
- Marine Protected Areas
- Global Coral Reef Monitoring Framework
- Biorock Technology for coral reef restoration

