

## **Diversity of Coastal Ecosystems of Maharashtra - Ecologically Sensitive Coastal Areas of Ratnagiri and Sindhudurga**

Abstract:

Approximately 20% of the world's coral reefs were lost and an additional 20% degraded in the last several decades of the twentieth century, and approximately 35% of mangrove area was lost during this time (Millennium Ecosystem Assessment, 2005). India being one of the mega-biodiverse countries it's our responsibility to inventories various neglected habitat and biota.

At least fifteen proposed developmental projects affecting coastal environment are set to be built on this narrow strip of 200 km long coastal land. Lack of awareness and absence of baseline information on marine and coastal biodiversity are main hindrance in bringing some of the areas under protected area framework. However, BNHS aims to identify ecologically sensitive areas and work for its protection through new approaches such as Smart PAs.

As an effort, to build a baseline, an extensive biodiversity documentation programme for coastal ecosystems of Maharashtra, BNHS's team is undertaking extensive surveys using internationally accepted criterion to identify ecologically sensitive marine and coastal areas. A preliminary report on the same was released during CBD COP 11 at Hyderabad.

### **Introduction**

The coastal region of the Maharashtra state has six districts viz. Thane, Greater Mumbai, Navi Mumbai, Raigad, Ratnagiri and Sindhudurg, popularly known as Konkan. The entire region is hilly, narrow, highly dissected with transverse ridges of the Sahyadri hill ranges (Western Ghats) on its east and at many places extending as promontories, notches, sea caves, embayment, submerged shoals and offshore islands. The upper limits of the coastline are lined by the coastal plateaus.

Intertidal area is area interfacing sea and terrestrial ecosystem, based on lunar force, the tidal activity changes various environmental factors. So, organisms/plants living in this dynamic environment have adapted themselves at various levels. The life-cycles of many species are intertwined; diversity and density are governed by various physico-chemical factors. These coastal ecosystems are important ecologically as well as economically. As the locals are dependent on these habitat for their daily needs such as fishing (artisanal as well as commercial), medicines etc.

Along the Maharashtra coast, about 15 rivers, 5 major creeks and 30 backwater regions have been reported (Jagtap et al, 1994). The major upstream freshwater flowing rivers or estuaries are absent, except few small rivers like Kundalika, Savitri, Vashishti, Shastri, and few creeks like Vaitarna, Ulhas-Thane complex, Karanja-Dharmatar complex, Dabhol, Jaigad, Sakhartar, Bhatye, Purnagad, Vijaydurga, Devgarh, Achra and Karli creeks. All these creeks and estuaries together form the drainage in East-West direction and flow/ drain to the Arabian Sea in the west. Mouths of these rivers and creeks are wide-open, funnel shaped with shoals.

As a part of extensive documentation of coastal ecosystems, studies on intertidal areas of Ratnagiri and Sindhudurg were carried out. 34 shores were studied in detail till now.

### **Major three types of habitat were identified**

Rocky shore, Sandy shores and Muddy and mangrove shores which have characteristically distributed along the coastal Maharashtra. Occasionally coral are present along the coastline in small patches.

#### Rocky Shores

Rocky shores in Konkan are out crops of foot hill of Sahyadri. These are formed in between sandy shores which have characteristic “c” shape forming bays. There are about 32 rocky shores along the coastal Maharashtra (Gole, 1997). Rocky shores are made up of eroded cliffs; wave cut platforms and vertical cliffs.

The main feature of rocky shores of Ratnagiri is tidal pools which harbours rich diverse life in high density.

#### Sandy Shores

Sandy shores are formed by accumulation of sand particles driven by wind or water current. Sandy beaches are classified on the basis of sand structures, wave action, surf zone and the sand grain size.

#### Mangroves and mudflats

Twelve backwater regions have been identified. All of these have Mudflats and forested patches of mangrove plants and their associate vegetation. Some of these patches are old which dates back to fifties or even older.

#### Coral Reefs

Coastal areas of Konkan especially Ratnagiri are known for the presence of patchy reefs along the shoreline. (Qasim and Wafer, 1979, Untawale et al, 2000, Spalding et al 2001). Two species are commonly found in intertidal zone along the Ratnagiri.

During this study 350 species of various types of fauna were recorded study including keystone organisms like Corals (12 species), seagrass (1 species), Mangrove and associates (15 species). Marine mammals were occasionally seen.

So as to protect habitat rather than just a site; clusters of sites inclusive of various habitats were formed. Five such clusters were proposed as ecologically sensitive coastal areas (ESCAs) till now.



Typical sea shore along Ratnagiri, Maharashtra



Mangrove forest at Khalachi Waki, Ansure, Rajapur



Mangroves at Dabhol creek



Zoantherian on rockpool wall at Bhatkarwada, Ratnagiri



