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Ecological Study of Khar Danda And Uran with Reference to Biodiversity

Zoology

KEYWORDS : Marine Ecology

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ABSTRACT

Marine and coastal biological diversity (biodiversity) encompass an enormous variety of marine and coastal species, global oceans' myriad coastal and open sea habitats and a wealth of ecological processes that support all of these. Coastal ecosystems such as estuaries, wetlands and mangrove forests contain significant diversity and are highly valuable for communities living in coastal areas. Much of the world's biodiversity is found in highly diverse marine and coastal habitats.

Introduction:-

Marine and coastal biological diversity (biodiversity) encompass an enormous variety of marine and coastal species, global oceans' myriad coastal and open sea habitats and a wealth of ecological processes that support all of these. Coastal ecosystems such as estuaries, wetlands and mangrove forests contain significant diversity and are highly valuable for communities living in coastal areas. Much of the world's biodiversity is found in highly diverse marine and coastal habitats. The Indian mainland coast is divided into two segments -the west coast and the east coast.

In India, the reefs are distributed along the east and west coasts at restricted places. The mangrove habitats are dynamic, rich in species and are highly productive. Along the west coast of India, there are nine important coastal lagoons. The fauna of the marine ecosystem is not evenly distributed throughout the oceans. About 1925 pelagic copepods have been described from marine waters of India.

The marine fauna of India is rich and varied. Out of total 22,000 species, about 4,000 species occur in Indian Ocean, of which 1800 species are from Indian seas. Majority of the nektonic species is found in coastal waters. Marine resources and biodiversity have traditionally been undervalued. Unregulated use of resources, increased demand for resources and rapidly expanding coastal development imperil the marine resources. Marine and coastal ecosystems with their rich species diversity provide a wide range of important resources and services as well as maintain sustainably fisheries and other marine living resources. In this work I have proposed a fundamental changes in the approach by which biodiversity is measured and studied in the ocean by emphasizing integrated regional scale research strategies within an environmentally relevant and socially responsible framework.

The selection of sites is mainly based on the level of pollution in Mumbai region, human inhabitant and the amount of fishing practiced in these areas. Khar danda is one of the oldest fishing shores in Mumbai with comparatively less polluted water whereas Uran is declared as 1st SEZ in India with heavy load of pollutants both from human origin and industrial activity. With the rigorous fishing activity it has been felt to study both the area with complete biodiversity and physio chemical parameters of marine environment to identify the future remedies and suggestions.

SITE NO 1: KHAR DANDA

Bombay was renamed Mumbai in 1996. The total area of the city is 440 sq. km or 170 sq. miles. Mumbai has a truly tropical climate and temperatures remain fairly uniform throughout the year. Mumbai is drowned every year under torrential Indian Ocean monsoon rains between June and September, usually beginning by 7th June every year. Mumbai is blessed with coastline of 26 km along with its western edge. This coast line is indented with large and small creeks.

Khar Danda is located to the western edge of Mumbai shore. This Khar-Danda fishing village is the oldest area where Koli community is living from a very long time.

Mumbai is the industrial hub of everything from textile to petrochemicals with total 36048 industries/factories. About 11,494 industries are located in the city and 24,554 industries are located in suburbs. Half of the Mumbai's populations about 12 million residents are slum dwellers or homeless without any process to sewage and sanitation facilities and use coastal area in and around city as a natural toilet with the result huge amount of sewage releasing directly into Arabian sea. As a result of voluminous amount of industrial and domestic effluent intake, coastal water in and around Mumbai is under the grip of pollution. General trend of elevation of nutrients is recorded in Mumbai coastal waters. Moreover, a drastic depletion in faunal and floral diversity of it was also noted. Mangrove species has been reduced from 14 to only two species at present. The present study describes details of human impact on coastal ecosystem in and around Mumbai and throws light on responses of coastal resources to anthropogenic pressure.

SITE No 2: Uran

Uran is a city and a municipal council near Mumbai in the Indian state of Maharashtra.

Uran is part of the Navi Mumbai city township and lies in the raigarh district near panvel and karjat situated east of Mumbai across the Thane Creek. Uran is primarily a fishing village which has developed into a special economy zone.it has ample industries, namely JNPT ,P&O and other shipping companies, GTPS, MSEB (Asia's first power plant run by gas),and ONGC.

The main occupation of the people in Uran is fishing. Out of the 80% of the fish production of Bombay comes from the fisherman of uran residing in the villages of karanja and mora. These people are known as koli.it helps in contributing to the raigad district rice production (Raigad is second largest district in production of rice in India).

The present thesis deals with studies on bio diversity of planktons, mangroves, free living protozoan, gastropods, arthropods, fishes, amphibians, reptiles and birds and the physico-chemical parameters of both the area selected.

Materials and Method:

Samples are collected from various sites of Khar danda and uran for laboratory examination. Present work is stretches over a period of six month i.e. Sept. 2013 to Feb. 2014.

The physio-chemical analysis has been done with standard methods. Phyto and zooplanktons have been collected by sedwick-rafter method.

Results & Discussions:

We discuss ecological study of khar danda and uran with reference to biodiversity.

List of Phytoplankton at uran:

Navicula, Climacodium, Biddulphia, Corethron, Asterionella, Peridinium, Ceratium sp, Dinophysis, Peridinium, Planktoniella,

Ceratium, Thalassiothrix, Ornithocercus, Distephanus, Ceratium, Ditylum, Hemidiscus.

List of Zooplankton at Khar danda and Uran:
Fish eggs, Fish larva, Copepods, Rotifers, Cladocera, Ostracoda, Medusa, Polychaete, Tunicates, Amphipods, Siphonophore, and Stomatopoda.

Important flora: Mangrove at Uran:

Scientific name	Common name
1 Avicennia marina marina	Grey mangrove
2 Avicenia marina acuticima	
3 Sessuvium portulacastrum	Sea purslane
4 Salvadora persica	Miswak
5 Acanthus iliicifolius	Sea Holy
6 Suaede fructicosa	
7 Aeluropes repens	
8 Derris trifoliate	
9 Ipomoea carnea	Besharam
10 Typha angustata	Ramban
11 Pongamea pinnata	Karanj
12 Clerodendron inerme	
13 Zizyphus mauritiana	Ber
14 Tamarix trouppi	

Mangroves at Khar danda:

15 Pithecollobium dulce	Jungle gilebi
16 Abelmoshus monitot	
17 Gloriosa superba	Glory Lilly
18 Seseame orientale	Wild til
19 Acacia nilotica	Indian babul
20 Acacia auriculiformis	Australian acacia
21 Parkinsonia aculeate	

Checklist of Common Aquatic fauna at Khar danda & Uran.

Sr.No	Fin fish	Crustacean fish	Gastropods
1	Boi	Scylla sereata	Cerithidieopsila djadjaviaensis
2	Cat fish	Varuna literata	Telescopium tel escopium
3	Prawns	Neris species	
4	Tilapia	Onchidium species	
5	Guppy	Melamus scyeleheocis	
6	Snake head fish		
7	Gobi		
8	Barbs		
9	Snake eel		
10	Pipe fish		

Checklist for Reptiles in Uran wetlands and around.

Sr.No	Common name	Scientific name
1	Indian rat snake	Ptyas mucosus
2	Brahminy worm snake	
3	Checkered keelback	Xenochrophis piscator
4	Forstern cat snake	
5	Indian rock phyton	Phyton molurus
6	Cobra	Naja naja
7	Russels viper	Daboia russelii
8	Common trinket	Elaphe Helena
9	Kukri snake	Oligodon arnensis
10	Vine snake	Ahaetulla nausuta
11	Dog faced snake	Cerberus rhynchops
12	File snake	
13	Banded racer	Argyrogena fasciolatus
14	Buffstriped keelback	Amphiesma stolata
15	Sand boa	
16	Common wolf snake	Lycodon aulicus
17	Indian Monitor lizard	Veranus bengalensis
18	Chameleon	
19	Garden lizard	
20	Brahminy skink	

List of fishes at Uran beach:
Gobi fish, guppy fish, Pipe fish, Snake head fish, Eel, Tiger barbs, Tilapia.

List of fishes at Khar danda:
Mackerel, Bombay Duck, Pomphret, Coilia Dussumeri.
I also studied the evident of heavy metal in fishes. Five metals (lead, copper, cadmium, arsenic, mercury) have been analysed in the body of Prawn, Mackerel, pomfret, King fish, Indian salmon. It has been found that the amount of heavy metal is above the considerable limits in the muscles of fishes.

REFERENCE

1) N.D. Kamat - Marine Algae. | 2) V.J.Chapman and D.J.Chapman - second edition 1973. | 3) Ian Morris - A. introduction to the algae - second edition -1968. | 4) D.V.Bal & K.V.Rao - Marine fisheries 1984 - Tata McGraw - Hill publishing company Limited. | 5) Nair & Thumpi - Marine ecology. | 6) Malik Kazim N - Ecological study of Khar - Danda suran - Dr.B.Am.U.Aurangabad Feb - 2014. |