A Review on Ecological importance of Estuarine Fishes

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Abstract— The mangrove ecosystem represents a unique biodiversity feature of the earth . They occupy littoral regions throughout the tropics and subtropics . Hence they are common near estuaries of rivers , creeks , lagoons and low islands . These formations form a link between terrestrial and marine ecosystem . The mangrove species are adapted to grow in saline habits (range 3-37ppt) that are regularly or occasionally inundated and also are capable of withstanding the stresses of continuous flooding and high salinity.

Keywords— Mangroves, Tropics, Fishes, Salinity

Introduction

The essential ecological support function that Mangrove provide for commercial recreational and subsistence fisheries by serving as a breeding ground and nursery habitat for marine life is well documented in literature (Hutchison et al ,2014) . The more recent studies estimate mangrove contribution to fisheries in the range of 10-32 percent . There are however , hardly any studies that estimate contribution of mangroves to commercial fishes in India . One exception is the study by Untawale (1986) that directly associates about 60 percent of commercially important coastal fishes species to mangrove environment in India .

Mangrove are found in the estuaries of these rivers but extensive mangroves wetlands are present only in the Godavari and Krishna deltaic regions . Andhra pradesh has about 582 sq.km of mangrove forests . This paper , however employs an economic analysis and features to examine the role of mangrove in increasing marine fish output in India.

I. OBJECTIVES

The major objectives of the present study was to -

Carryout a detailed analysis of the type of fishes found in a particular delta of Andhra pradesh e mangrove fishes of Krishna and Godavari deltas.

Study the distribution and the survival of these mangroves fishes in those mangrove areas. Study the impact of the climate on their survival and the adaptive and their organs.

Study the patterns , morphological characters which includes body shape , relative size of head , number of fins rays , scales and etc

Identify major impacts , natural and man-made and develop , conservation strategies based on the results obtained from the above studies.

Geographical Factors

Pulicat Lake, a natural brackish-water lagoon present in the Krishna, Godavari delta, features a unique and interesting ecosystem, with diverse fauna and flora, housing several species of birds, serving as a nursery and breeding ground for many species of marine fauna and supporting various commercial fishing activities. It is aligned parallel to the coast line with its western and eastern parts covered with sand ridges.

Climate of the lagoon coast line is dominated by tropical monsoons. The large spindle-shape barrier island named Sriharikota separates the lake from the Bay of Bengal. The sandy barrier islands of Irkam and Venad and smaller islands in the north are aligned north–south and divide the lagoon into eastern and western sectors. The morphology of the lagoons is categorized under four types with large areas under mudflats and sandflats. The fishing village of Pulicat is at the south end of the lake. The Satish Dhawan Space Center is located on the north end of the island.

Pulicat, Dugarajupatnam and Sullurpeta are villages located on the periphery of the lagoon. The Kalangi river towards the mid-western region of the lake in Andhra Pradesh. The rivers Kalangi, Kaleru, Arani and the Buckingham Canal bring in enormous quantities of floodwaters. Tropical sub-humid type of climate is prevalent in Pulicat Lake. The atmospheric temperatures were found to be ranging between 35-36°C, while the temperatures were low during the monsoon. Net evaporation is high with the relative humidity.

Continuous strong winds are regular in the south-west quadrant from March to September. Between October and February, prevailing winds are from the north-east quadrant in the evening. Average annual rainfall ranges from 0.55 mm to 517 mm, of which the maximum is recorded during the

north-east monsoon. The soil in the nearby areas is of sandy type.

II. MATERIALS AND METHODS:

Fish harvesting system includes the components, fishing vessels (craft) and fishing gear. The term fishery vessels is used to denote the mobile floating objects of any kind and size operating in freshwater, brackish water and marine areas, used for catching, transporting, landing,preserving and/or processing of fish, shellfish and other aquatic animals. There are vessels performing other functions related to fisheries such as supplying, protecting, rendering assistance or conducting research or training.

The term fishing vessel is used to distinguish fishery vessels engaged in catching operations. The term non-fishing vessel covers the remaining fishery vessels. The basic criterion used for the classification of fishery vessels is the gear used for catching fish or other aquatic organisms. The characteristics used to distinguish the various types and classes of fishing vessels are the general arrangement and deck layout, position of the bridge or wheelhouse, the fishing equipment used and the method of fish preservation and processing used in the vessel.

Traditional methods of fish harvesting are Ring seine, Stake net, Chinese dip net, Cast net, Shore seine, Trammel net, Mini trawls, Gill nets, Hook and line, traps and pots.

Modern methods of fish harvesting include Trawling, Purse seining, Gill net, Hook and line mechanized, Jigging and Trolling Lines.

III. SPECIES OF FISHES COMMONLY FOUND ARE:

TERAPONJARBUA, MYSTUS VITTATUS, CHANOS CHANOS, SARDINELLA FIMBRIATA, NEMATO ALOSANASUS, PUNTIAS DORSALIS, TENUALO SAILISHA, PLANILIZA SUBVIRIDIS, STRONGYLURA STRONGYLURA

IV. FEEDING HABITS OF ESTUARINE FISHES:

Food habits and feeding ecology research are a fundamental tool to understand fish roles within their ecosystems since they indicate relationships based on feeding resources and indirectly indicate community energy flux, which allows inferring competition and predation effects on community structure.

Other resources such as space and time have also been important for community ecology and the ecological theory predicts that resource partitioning at spatial, temporal and trophic level may increase tolerance of niche overlap reducing competition pressure between co-occurring species.

Ross identified that in aquatic environments food is the main factor and that its partition defines functional groups within the community, which get together in guilds according to trophic similarity. Several studies have focused on competitive exclusion and resource partitioning in teleost fishes and have found that habitat partitioning could be related to high dietary overlap among competing species or to interactive competition, where competing species have the same preference by preys

DISCUSSION

Mangroves are salt tolerant ecosystem found along estuarine sea coast the tropical and the subtropical regions of the world mainly in the intertidal zone. They can withstand high condition viz. High salinity, tidal extremes and high fluctuations in wind, temperature, muddy anaerobic soil, the special morphological adaptations developed are stilt roots , viviparous germination , knee roots etc

Mangrove fishes can tolerate high salinity and also can withstand high tidal movement. The fishes found in this region are of more economic importance and are also of more scientific value and aesthetic value. They are also high sources of income for the men near seashores. Some fishes have specialized organs and some fishes need some organs do be well developed for their survival.

V. CONCLUSION

After analysis of fishes it was noticed that some fishes still need to be studied more to get more information on their body system, function, and they morphological characters including body, shape, configuration and size of fins, etc. The body system and functions of some organs still needs to be discussed in brief and also the organs whose functions have not yet been found.

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