



## RESEARCH ARTICLE

## Fish Resources in Nizampatnam coast, Andhra Pradesh

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### Abstract

Coastal environment can be effected both marine conditions such as pollutants and natural disturbances. Construction of dams and river diversions can also leads to reduce the water runoff and its may directly effect on the salinity of the coastal waters. Due to disturbances monsoon periods, the lack of fresh water inflow to the deltaic reasons effects sediment influx and nutrient reasons of coastal habitats. The coastal fishing habitats increased substantially and now almost exceed income from target species. Over the same period, by catch (Which was traditionally discarded) has now become increasing marketable, being sold for local consumption, and as a fish meal to supply the reasons rapidly growing aquaculture and poultry industry. Fishery resources are finite and renewable. It placed under the sound management before over fishing has caused irreversible effects, the fisheries can be conserved and maintained so as to provide optimum yield continuing basis. In the present study 45 species belong 42 genera, 23 families and 7 orders. Among the orders perciformes is dominant. The IUCN status represented to Near threatened one species, Data deficient one species, 14 species are Least concern and 29 species from the Nizampatnam coast.

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## INTRODUCTION

The distribution of fish communities in coastal area is known to fluctuate over space and time. Research has so far been focused on understanding these patterns, with emphasis among the other characters. Coastal areas particularly estuaries are known in many parts of the world as breeding and nursery grounds for a wide variety of fishes. Although, estuaries provides a rather harsh environment because of change of salinity, so many species of fish have found them to be an ideal place for spawning, development and growth during early stages of life, that way productivity tends to be high here. A variety of fishes inhabits the estuarine environment. So many species are migratory species, which use this habitat in their early life cycle as a necessary. Some of them are permanent residents of the estuaries, which spend their entire life cycle in this area. The environment variables such as salinity and distance from the estuary mouth influence the distribution, abundance and community structure of fishes in estuaries (Bell et al., 1988). The fauna of estuarine system is generally composed of marine and freshwater organisms which can adapt waters of varying, salinities besides truly resident's species. As per the species concerned, they are groups as residents and transient's. Some of them are being present in estuarine region throughout the year and some are may hot. The change of brackish water environment causes fluctuations on the survival, growth and breeding of fishes. The complete spectrum of distribution and species composition of juvenile's fish in relation to the dynamic changes of physico-chemical features of estuaries and fish juveniles are abundantly available in the shallow coasts, estuarine and brackish waters as they are the safe from predators and their composition changes with seasons. Larval fish assemblage can also be seasonally influenced in an estuarine region and seasonal variations have been well documented (Barletta-Bergan et al., 2002; Re, 2005).

The near-shore marine environment is generally a turbulent one with wave and current action being dominant. Nizampatnam Bay is an embayment adjoining the Krishna Delta is its southern side. It has a coastline of about 125 km between Kottapalem in the south –west and False Divi point in the north east. The Bay covers an area of 1,825 km<sup>2</sup>. It is a shallow marine environment and the bottom topography of the bay is smooth and generally slopes towards the open sea.

In the river Krishna estuarine particularly Nizampatnam mangrove ecosystems are decreased in this area and changes in fishes species diversity can be attributed to the impact of solid waste the shrimp ponds released from the surrounding areas and the decreased inflow of freshwater from the river due to the construction of dams across the river for use of water for agriculture and drinking water purpose. Further, construction of the port city at Nizampatnam and declare the coastal corridor by the Government of Andhra Pradesh are going to affect of the mangrove vegetation in this region. In the present has been taken for to access and document the current status of fish fauna of Nizampatna coast which helps for further studies in this region.

### **Materials and Methods:**

The fish samples were collected fortnightly in the Nizampatnam coast from Jan 2012- Dec 2012. Then the fishes were preserved in 10% formalin for further investigations. All the necessary data for morphometric and meristic characters were recorded in all fishes. Based on the standard taxonomic keys (Day, 1875-78, 1889; Koumans 1953, Talwar and Kacker, 1984; Talwar and Jhingran, 1991).Fishes was indentified and the current naked name of each species and also IUCN status also observed in the fish base (Version06/2014).

### **Results and Discussion**

Results and systematic taxonomic position of the recorded species and their details from the present study are give in Table No: 1. A total number of 45 species belongs to 24 families and 7 orders, perciformes (27) are dominant followed by clupeiformes(8) and Aguiliformes(6) . Lose of species through habitat lose its difficult to quantity in several coastal habitat, because these impacts tend to be localized. Nizampatnam area so many mangrove species are eliminated from habitat due to various anthropogenic activities (Krishna and MadhusudhanaRao, 2011).Anthropogenic activities affecting coastal habitats is a known phenomenon and a global map of human impacts on marine ecosystems. Halpern et al., (2008), reported that no area of the ocean is unaffected and a large fraction (41%) is affected by multiple anthropogenic drivers, with large areas of high predicted impact occurring in some coastal ecosystems, some of them with high population densities.

In recent years the rate of production increase has been very marginal inspire of increasing the fishing effort by introducing more mechanised fishing boats every year. Several types of craft and gear are also been responsible for over exploitation of marine and coastal resources. Some times in this area the catch unit effort has been going down, the fishing effort has increased beyond the capacity of the fishery resource to sustain (Varadharajan et al; 2009).

In the present study IUCN status goes to one species goes near threatened, one species goes to data deficient, 14 species are least concern and 29 species are not evaluated(Fig-1). In spite of pressure from anthropogenic activities and other industrial development goes huge impact on mangroves of Nizampatnam area. From the standpoint of conservation the faunal diversity of Nizampatnam area has so far received little attention. By increasing the fishing effort, the yield can be increased to certain level, but further increase in exploitation levels leads to reduction in the yield and if the effort is still further increased regardless of the reduction in total catch and species diversity. The fish and fishery stock under exploitation may collapse and fishing community may have to face the problem of rehabilitation. Such a situation would rise if proper scientific advice on the maximum possible effort and safe gear and mesh levels that could be deployed to exploit the resources of stock/stocks in a given area was not made and not properly implemented. Hence, the exploited stocks needs to be maintained careful and scientific advice rendered to the government and industry on the range of measure required to ensure maximum economic and sustainable production. Several scientists are moving the study of mangrove fishes beyond pattern recognition towards more ecologically meaningful landscape scale approaches, including habitat connectivity, suitability, and the contribution of mangrove habitats in support to adult fish population.

Commercial fishing is responsible for large scale declines and local extinctions of many species (Dulvy et al., 2003; Jennings & Blanchard, 2004; Scales et al., 2007) and presently 79% of fisheries worldwide are believed to be overexploited (FAO, 2009).The non specific nature of many fishing gears means that these fisheries impact not merely their target species but many other species besides, commonly referred to as by catch (Hall et al., 2000). FAO estimates suggest that there have been reductions in the amount of discards over time (Kelleher 2005; Zeller & Pauly, 2005). Factors are contributing to this trend is an increase in the landing of previously discarded trash fish by

catch (Fung-Smith et al.2005), that is processed as feed for aquaculture and livestock, used as farm manure, and in some cases, sold for human consumption (Nunoo et al.2009).The implications of these changes and anthropogenic activities may cause of decline of fish resources in the Nizampatnam area.

**Table-N0.1: List of Species Fish fauna and IUCN status of Nizampatnam Coast**

S.NO	Order	Family	Species	IUCN
1.	Anguilliformes	<u>Moringuidae</u>	<i>Moringua raitaborua</i>	(NE)
2.		<u>Muraenidae</u>	<i>Gymnothorax meleagris</i>	(NE)
3.		Muraenidae	<i>Strophidon sathete</i>	(NE)
4.		<u>Ophichthidae</u>	<i>Pisodonophis boro</i>	(LC)
5.		<u>Congridae</u>	<i>Uroconger leptirus</i>	(NE)
6.		<u>Muraenesocidae</u>	<i>Muraenesox bagio</i>	(NE)
7.	<u>Clupeiformes</u>	<u>Clupeidae</u>	<i>Anodontostoma chacunda</i>	(NE)
8.		<u>Clupeidae</u>	<i>Escualosa thracata(valenciennes)</i>	(NE)
9.		<u>Clupeidae</u>	<i>Sardinella gibbosa</i>	(NE)
10.		<u>Engraulidae</u>	<i>Coilia reynaldi Valenciennes</i>	(NE)
11.		<u>Engraulidae</u>	<i>Stolephorus baganensis Hardenberg</i>	(NE)
12.		<u>Engraulidae</u>	<i>Thryssa hamiltonii Gray</i>	(NE)
13.		<u>Engraulidae</u>	<i>Thryssa purava</i>	(NE)
14.		<u>Engraulidae</u>	<i>Thryssa setirostris</i>	(NE)
15.	<u>Gonorynchiformes</u>	<u>Chanidae</u>	<i>Chanos chanos</i>	(NE)
16.	<u>Siluriformes</u>	<u>Bagridae</u>	<i>Mystus gulio</i>	(LC)
17.	<u>Beloniformes</u>	<u>Hemiramphidae</u>	<i>Hyporhamphus limbatus</i>	(LC)
18.	<u>Scorpaeniformes</u>	<u>Platycephalidae</u>	<i>Grammoplites scaber</i>	(NE)
19.	<u>Perciformes</u>	<u>Ambassidae</u>	<i>Ambassis kopsii</i>	(NE)
20.		<u>Ambassidae</u>	<i>Ambassis nalua</i>	(LC)
21.		<u>Latidae</u>	<i>Lates calcarifer</i>	(NE)
22.		<u>Latidae</u>	<i>Epinephelus maculatus</i>	(LC)
23.		<u>Terapontidae</u>	<i>Terapon jarbua</i>	(LC)
24.		<u>Sillaginidae</u>	<i>Sillago sihama</i>	(NE)
25.		<u>Leiognathidae</u>	<i>Leiognathus daura</i>	(NE)

26.		<u>Lutjanidae</u>	<i>Lutjanus johnii</i>	(NE)
27.		<u>Gerreidae</u>	<i>Gerres filamentosus</i>	(LC)
28.		<u>Gerreidae</u>	<i>Gerres limbatus</i>	(LC)
29.		<u>Haemulidae</u>	<i>Pomadasys maculatus</i>	(LC)
30.		<u>Polynemidae</u>	<i>Eleutheronema tetradactylum</i>	(NE)
31.		<u>Mullidae</u>	<i>Upeneus sulphureus</i>	(NE)
32.		<u>Eleotridae</u>	<i>Butis butis</i>	(LC)
33.		<u>Eleotridae</u>	<i>Eneotris fusca</i>	(NE)
34.		<u>Gobiidae</u>	<i>Stigmatogobius sadanundio</i>	(NE)
35.		<u>Gobiidae</u>	<i>Boleophthalmus boddarti</i>	(NE)
36.		<u>Gobiidae</u>	<i>Taenioides buchanani</i>	(NE)
37.		<u>Gobiidae</u>	<i>Taenioides cirratus</i>	(DD)
38.		<u>Gobiidae</u>	<i>Trypauchen vagina</i>	(NE)
39.		<u>Gobiidae</u>	<i>Yougeichthys criniger</i>	(NE)
40.		<u>Gobiidae</u>	<i>Glossogobius giuris</i>	(LC)
41.		<u>Scatophagidae</u>	<i>Scatophagus argus</i>	(LC)
42.		Sphyraenidae	<i>Sphyraena jello Cuvier</i>	(NE)
43.		Cichlidae	<i>Oreochromis mosambicus</i>	(NT)
44.	<u>Mugiliformes</u>	<u>Mugilidae</u>	<i>Mugil cephalus Linnaeus</i>	(LC)
45.	<u>Mugiliformes</u>	<u>Mugilidae</u>	<i>Liza macrolepis</i>	(LC)

NE = Not Evaluated

LC= Least concern

DD= Data deficient

NT= Near Threatened

Fig - 1 : IUCN Status of Fishes from Nizampatnam Coast

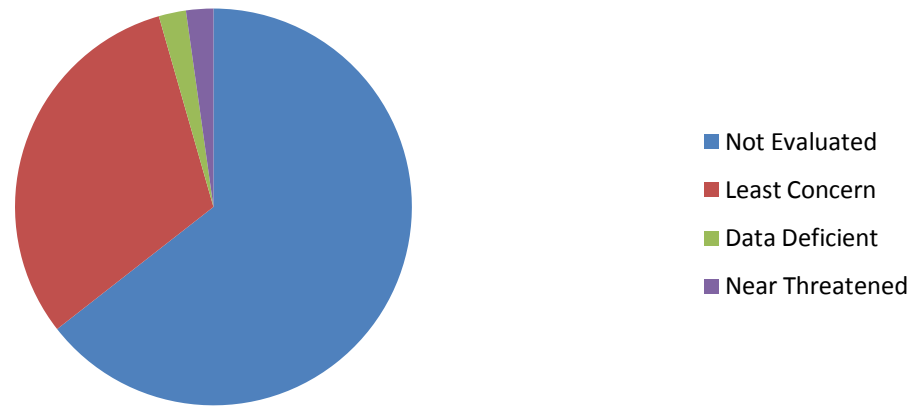
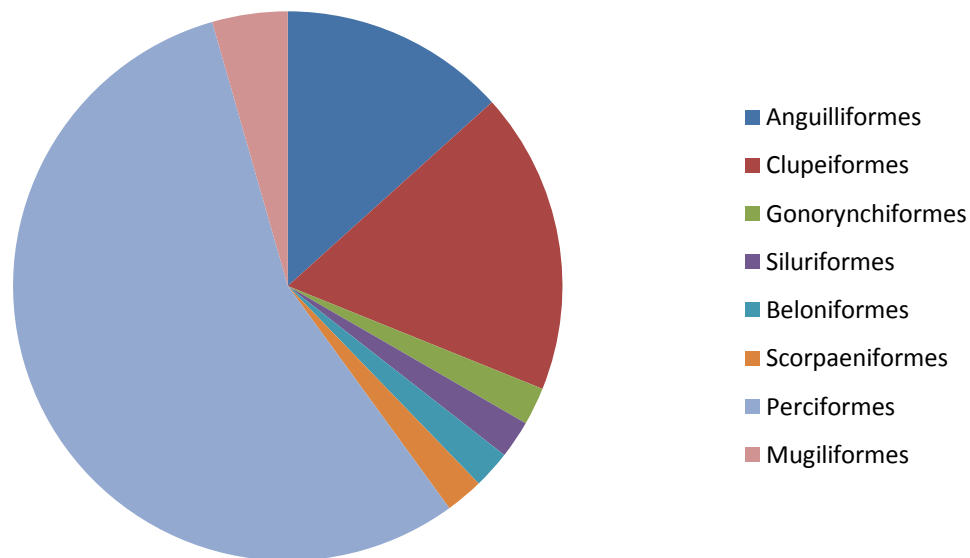


Fig - 2 : Orderwise Percentage Fish Species



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