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RESEARCH ARTICLE

A STUDY ON DIVERSITY OF MOLLUSCS IN NEIL ISLANDS

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ABSTRACT

The Andaman sea Eco region is biologically rich in both diversity and abundance. The high diversity is encountered from genus to individual species, habitat and ecosystems. The coral reefs, mangroves, sea grass beds, marine lakes and deep sea valleys of the region form a constellation of diverse habitat that support a spectacular variety of fauna. Molluscsare highly successful invertebrates in terms of ecology and adaptation and are found nearly in all habitats ranging from deepest ocean trenches to the intertidal zones, and freshwater to land occupying a wide range of habitats. Much of the molluscan diversity occurs in the tropical world. Despite this great diversity, very few studies on molluscs have been carried out in the tropical world. An attempt was made to study the diversity and distribution of molluscs along the intertidal regions of Neil islands. During the survey three different beaches of Neil Island were selected, named, Sitapurbeach, Laxmanpur beach and Bharatpur beach. The study area is located 37 kms to lies in the northern part of south of the Andaman Islands. A total of 45 molluscs (bivalves and gastropods) were investigated from these islands. Gastropods were more abundant than thebivalves. Maximum species were obtained from Bharatpur beach as compared to Sitapurbeach and Laxmanpur beach. The dominant gastropodsspecies belong to order Neogastropodain all the three study area whereas dominant bivalve were reported under order Veneroida from Bharatpur beach. Laxmanpur recorded only one species of bivalve and no bivalves were recorded from Sitapur beach. The molluscs fauna showed variations in all the three study but the community structure is stable along the study area; it seems that habitat type has a strong influence on the distribution and abundance of both phyla. The present study investigated rich diversity of molluscs which included gastropods and bivalves. The result of the present study will be discussed.

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INTRODUCTION

The mollusc faunal resource of world status is 66535 species and in India shows 7.62% (5070) of the world molluscs resources (Ramakrishna and Alfred, 2007). The history of malacological studies in India is immense and interesting. The studies on Indian molluscs were initiated by the Asiatic Society of Bengal and the Indian museum, Calcutta (Venkataraman and Wafar, 2005). The 20th century exhibits the most significant study on malacology by Zoological Survey of India, Central Marine Fisheries Research Institute and other marine science institutions of India. 3370 species of marine molluscs have been recorded in India, out of that 1282 species from Andaman and Nicobar Islands (SubbaRao and Dey, 2000). The present study aims to provide new inventory and information of fauna about molluscs species that have been recently collected and photographed alive in Andaman waters. The molluscs constitute a natural resource of sizable magnitude in many parts of the world. They are an age-old group represented among the early fossils, a group of great diversity in size, distribution, habitat and utility. The range of their distribution is as extensive in space as in time for it covers terrestrial, marine and freshwater habitats. Molluscs are soft bodied, heterogenous group of animals with great antiquity and diversity. The shells of molluscs are extremely diversified in shape and colour. They consist of a class of bilaterally symmetrical marine mollusks amphineura, a single piece spirally twisted shell gastropods, two valved bivalves, cephalopods comprising of squids, cuttlefishes, octopus and nautilus and the elephant tusk shells scaphopod. The majority of molluscs inhabit marine biotopes and they occur from the back water zone, mangrooves, intertidal, shelf and down to deeper waters. They include members from the tiny estuarine gastropod Bithynia and small garden snails to the Giant clam Tridacna or the Giant squid Architeuthis. Oysters, mussels, clams, pearl oysters and chank are the important molluscs, exploited in India from time immemorial. Except for chanks, pearl oysters and cephalopod, much attention was not paid for organized exploitation of molluscan resources from Indian waters till recently. Other gastropod and bivalve fisheries are of sustenance nature and are used for edible purpose, source of

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lime, as decorative shells or for industrial purpose. The molluscs sustain regular and very productive fisheries in our waters. Only a few of the mussels, clams and oysters are now generally eaten and even these are more a poorman's food.

STUDY AREA

The study area is located 37 kms to lies in the northern part of south of the Andaman Islands. During the survey three different beaches of Neil Island were selected, named, Sitapur beach, Laxmanpur beach and Bharatpur beach. Sitapur beach is located 5 kms to the south of this Island. This beach is exposed to open sea and thus prone to higher tides. Bharatpur beach is located half a kilometer from the jetty and the area is full of corals with shoal of fishes swimming around. Laxmanpur beach is located 2 kms of Neil jetty which has rocky shore. There is lots of coral formation, ornamental fishes, sea urchins, sea cucumber, brittle stars etc. The survey was carried out in these three islands.

MATERIALS AND METHODS

Fauna diversity assessment was carried out along the intertidal regions of Neil islands namely Sitapur beach, Laxmanpur beach and Bharatpur beach. The gastropods and bivalves are generally collected by hand digging and large power dredging methods from a known unit area either using a quadrate or in terms of numbers collected per man per hour. Further the gastropods and bivalves are generally collected by hand digging and large power dredging methods. In these, the hand digging is traditional, hard and man oriented; whereas dredging involves a less man power and money worth but this technique destroys the substrate, where the gastropods and bivalves live. Therefore, commercially, the hand digging is more preferable technique, without damaging the nearer area (Varshney and Ghosh, 1997). The collected molluscs samples were identified using SubbaRao and Dey, 2000. Catalogue of Marine Molluscs of Andaman and Nicobar Islands, Occ. Paper No., 187: 1-323 and internet source (www.seashellforum.net). The collected specimens were photographed and preserved for futher analysis.

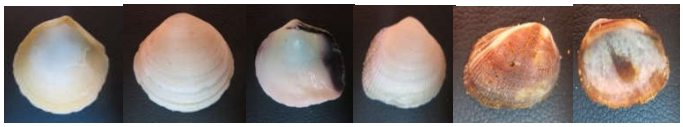
RESULTS

A total of 45 species of macro benthos (molluscs) were investigated from these islands. Bharatpur Island reported 23 individuals, under 5 orders and 17 families out of which 14 species were recorded under gastropods. Laxmanpur beach reported 17 individual under 3order and 8 family and Sitapur Island reported 5 individuals under 3 order and 5 family. The gastropods were more abundant than the bivalves. Bivalves were mostly reported from Bharatpur beach and a single species was reported from Laxmanpur Beach. The dominant gastropods species belong to order Neogastropoda in all the three study area whereas dominant bivalve were reported under order Veneroida from Bharatpur beach.

Laxmanpur recorded only one species of bivalve and no bivalves were recorded from Sitapur beach. The molluscs fauna showed variations in all the three study but the community structure is stable along the study area; it seems that habitat type has a strong influence on the distribution and abundance of both phyla.

Plate 1. List of identified specimen from Bharatpur, Neil Island

Anodontia edentula Asaphis violascens Barbatia amygdalumtostum

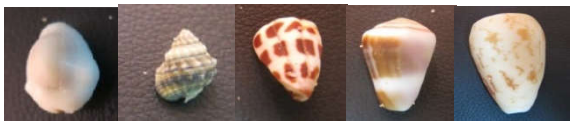


Codakia tigerina Fragum unedo Gafrarium pectinatum

Quidnipagus palatam Spondylus nicobaricus Tracbhycardiumflavum

Canarium labiatum Chichoreus Clypeomorus Euprotomus Helicus Brunneu sbatillariae formisaurisdianaeareola

Monetaria Nassarius Conus Conus Conus Monetastolatus Ebraeus flavidus straiatus



Engina Nerita Nerita Terebralia Mendicaria albicilla chaemeleonpalustrisa

Plate 2.list of identified specimen from Laxmanpur, Neil Island

Canariium Clypeomorus Clypeomorus Conus Conus Labiatumbatillariae formpetrosacoronatusebraeus

Conus Drupa Drupa Engina MitraM itra rattuslobatamorumlineatachrysalis aurantia

Mitra Mitra Morula Palmadusta Tenguella Spondylus litteratapauperculaanaxaresasellusgranulate gaederopus

Plate 3: List of identified specimen from Sitapur, Neil Island

Clypeomorus Engina Monetaria Nerita Thais
Petrosa petrosa mendicaria caputserpentis albicilla virgata

List of identified specimens from Bharatpur beach

Class	Order	Family	Genus & species
Bivalve	Veneroida	Lucinidae	*Anodontia edentula*
			Codakia tigerina
		Psammobiidae	*Asaphis violascens*
		Cardiidae	*Fragum unedo*
		Veneridae	*Gafrarium pectinatum*
		Tellinidae	*Quidnipagus palatam*
	Pectinoida	Spondylidae	*Spondylus nicobaricus*
	Arcida	Arcidae	*Barbatia amygdalumtostum*
Gastropoda	Neogastropoda	Strombidae	*Canarium labiatum*
			Euprotomus aurisdianae
		Muricidae	*Chicoreus brunneus*
		Cerithiidae	*Clypeomorus batillariaeformis*
		Conidae	*Conus ebraeus*
			Conus flavidus
			Conus straiatus
		Buccinidae	*Engina mendicaria*
		Architectonicidae	*Heliacus areola*
		Cypraeidae	*Monetaria moneta*
		Nassariidae	*Nassarius stolatus*
		Potamididae	*Terebralia palustris*
	Cycloneritimorpha	Neritidae	*Nerita albicilla*
			Nerita chamaeleon

List of identified specimens from Laxampur beach

Class	Order	Family	Genus & species
Gastropoda	Littorinimorpha	Strombidae	*Canarium labiatum*
		Cypraeidae	*Palmadusta asellus*
	Neogastropoda	Cerithiidae	*Clypeomorus batillariaeformis*
			Clypeomorus petrosa
		Conidae	*Conus coronatus*
			Conus ebraeus
			Conus rattus
		Muricidae	*Drupal obata*
			Drupa morum
			Morula anaxares
			Tenguella granulata
		Buccinidae	*Engina lineata*
		Mitridae	*Mitra chrysalis*
			Mitra aurantia
			Mitra litterata
			Mitra paupercula
Bivalve	Pectinoida	Spondylidae	*Spondylus gaederopus*

List of identified specimens from Sitapur beach

Class	Order	Family	Genus & species
Gastropoda	Neogastropoda	Cerithiidae	*Clypeomorus petrosa*
		Buccinidae	*Engina mendicaria*
		Muricidae	*Thaisvirgata*
	Cycloneritimorpha	Neritidae	*Nerita albicilla*
	Littorinimorpha	Cypraeidae	*Monetaria caputserpentis*

CONCLUSION

The present study searches the high diversity of molluscs in the Neil Island, which is a tiny beautiful island located 37 Kms to the south of Andaman Islands. With unexplored coral reefs, brilliant biodiversity and tropical forest and vegetation, it is one of the hot tourist spots in Andaman Islands hence the Fauna needs to be protected and prevented by formulating effective management strategies like research and development activities such as ecology, qualitative studies of organic production, species inventory, periodical survey of the population and its seasonal abundance and changes.

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