



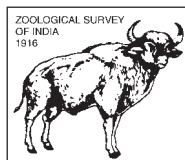
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LITTORAL FAUNAL DIVERSITY OF GREAT NICOBAR ISLAND

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INTRODUCTION

The Andaman and Nicobar are the mountain chain of 572 oceanic islands located (Lat. 06-14°N and Long. 92-94°E) between Bay of Bengal and Andaman Sea in Indian Ocean at a length of 800 km with a coast line of 1962 km. These islands have a continuation with the Arakan Yoma of Burma in the north and Achin Head of Sumatra in the south. Andaman and Nicobar Islands are once a part of Asian mainland but got detached some 100 million years ago during Upper Mesozoic Period due to geographical upheaval. These two groups of islands are separated by Ten-Degree Channel which is about 150 km wide and 400 fathoms deep (Tikadar and Das, 1985).

Nicobar group is comprised of 24 islands. Being the southernmost landmass with an area of 1044 sq km, the Great Nicobar Island is largest in Nicobar group. The Great Nicobar Island is separated from rest of the islands of Nicobar group by Saint George Channel in the north and Great Channel in the south. The environmental clues had taken several pivotal roles for the successful succession enriched with biodiversity both in marine and terrestrial realm of this island. The quantum of lives with its natural habitat and phenomenon, wild beauties of nature, pristine beaches of the islands, presence of several ecosystems such as grass land to evergreen forest, mangrove to deciduous forest and faunal components of coral reef ecosystem contributed to make this island as incredible part of biodiversity.

Great Nicobar Biosphere Reserve

Great Nicobar Biosphere Reserve (GNBR) was declared on 6th January 1989 by the Government of India Order No. J-22010/14/89-CSC. The GNBR is comprised of Campbell Bay National Park in the north and Galathea National Park in the south. The GNBR spread 885 km² in two zones. A total area of 705 km² has been designated as Core Zone, and 180 km² is Buffer Zone. The entire northern part of the island and the area between Alexandra River and Chengappa Bay is Zone-I with 520 km² of Core Zone and 90 km² of Buffer Zone. The Buffer Zone consists of 180 km² spread over 90 km² in each of the two zones. The southern part between the Sahini and Mahi hill ranges including the Galathea River is Zone-II with 185 km² of Core Zone. The Core Zone represents the least disturbed region existing more or less in its natural state. An outer area of 159 km² is designated as Transition Zone for management requirements of the area such as providing sustainable livelihood to the indigenous people. This include providing safe drinking water to local people, compensation for damages to life and crop, setting up

of biogas plants to ensure the involvement of local people in conservation efforts. Eco-tourism activities are also in practice in other fringe areas and eco-development works like compatible agriculture, recreation and other relevant sectors are in progress with the participation of local people. Apart from that 55.63 square kilometers are included in the Marine area of Biosphere Reserve. It will provide a space for construction of jetties and infrastructure facilities for fisher-folk, and development of ecotourism especially scuba diving, snorkeling etc.

GNBR represents the tropical forest biome, and is located in the tropical Indo-Malayan bio-geographic zone of the world. Five perennial rivers namely Alexandra, Dagmar, Galathea, Jubilee and Amrit Kaur originates/passes on the Great Nicobar Island. Biogeographically, Great Nicobar Island is the most important region and one of the noted areas for speciation in the tropics. The biosphere reserve is represented by unique and threatened tropical evergreen forest ecosystems including a host of forest systems, ranging from seasonal rain forests in the low hills, tropical mountain forests and moist deciduous to shrub through dry-deciduous. Barring the North Andaman there is no region in these islands where such large contiguous forest area still exists. The region is noted for its rich biodiversity. It houses 650 species of angiosperms, ferns and gymnosperms. The tree fern, *Cyathea albosetacea* is dominant in many parts of the Reserve. Other important plant species are *Scaevola sercea*, *Heritiera littoralis*, *Pandanus* spp., *Terminalia bialata*, *Barringtonia andamanicos*, *Rhizophora* spp, *Gnetum gnemon*, *Sterculia macrophylla*, *Elaeocarpus aristatus* etc. The knowledge of the lower plants is however limited. The fauna consists of over 1800 species. In addition, 200 species of meiofauna have also been recorded from the coastal habitat. The vertebrate fauna includes 14 species of mammals, 71 species of birds, 26 species of reptiles 10 species of amphibians, and 113 species of fishes. Invertebrates are represented by 7 species of annelids, 417 species of insects including 73 species of butterflies and 132 species of moths, a large number of other invertebrates such as molluscs etc. and many more species that await discovery. The important faunal elements of the Biosphere Reserve include the Nicobar Tree Shrew, Wild Boar, Nicobar Civet, Nicobar Pigeon, Nicobar Megapode, Serpent Eagle, Marine Turtle, and Reticulated Python etc. Among the birds Nicobar Megapode, Nicobar Sparrow hawk, Nicobar Serpent Eagle, Blyth's Parakeet and Nicobar Bulbul are endemic to Nicobars while Andaman Woodpigeon, Andaman Cuckoo dove, White bellied Mynah and Andaman Hawk owl are endemic to Andaman and Nicobar Islands. The richness of flora and fauna of this region reflects the diversity of habitats associated with a wide range. The Great Nicobar Island has been identified as an Endemic Bird Area by the Royal Society for Protection of Birds. This reserve is home for several endemic and endangered species namely Nicobar Megapode *Megapodius nicobariensis*, Edible-nest Swiftlet *Aerodramus fuciphagus*, Nicobar Tree Shrew *Tupaia*

nicobarica, Long-tailed Macaque *Macaca fascicularis*, Saltwater Crocodile *Crocodylus porosus*, Giant Leatherback Sea Turtle *Dermochelys coriacea*, Reticulated Python *Python reticulatus* and Coconut Crab *Birgus latro*.

GNBR in UNESCO-MAB Network

The Great Nicobar Biosphere Reserve is one of the 16 Biosphere Reserves created under the Man and Biosphere Programme of Ministry of Environment and Forests, Government of India. The GNBR with an total area of 885 km² encompasses two National Parks, the Galathea National Park (185 km² area) which represents Galathea river basin composed of low-lying hills not exceeding 250m and the Campbell Bay National Park (520 km² area) with the high mountain ranges reaching to a height of 670m in Mount Thulliler. The extremely high endemism and extraordinary diversity at the species and community levels make the Campbell Bay National Park one of the hottest hotspots in the world. The Great Nicobar Biosphere Reserve is included in UNESCO-MAB Network during May 2013. Currently world network of Biosphere Reserves counts 621 from 117 countries in which GNBR is also one among them.

Landscape features and land use history

The total geographical area of the island is 1044 km² with a length of 55 km from Murray Point in the North to Indira Point in the South. The greatest width of about 30 km is in the north which narrows down to about 3 km in the southern tip. Land use was forest since time immemorial. Immigration of mainlanders began in 1969, when 337 families were settled on the southeastern coast of Great Nicobar Island. The total population of Great Nicobar Island was 3000 in 2011 of which 1200 resided in Campbell Bay. The economy of the settlers is based on agricultural production and fishing. Paddy, coconut, arecanut and spices constitute the major agricultural produce. Rice is grown on a subsistence basis. Income generating horticulture crops include coconut plantations and arecanut plantations. Fishing is done mainly by the fisher-folk who migrated from Andhra Pradesh and settled in Campbell Bay and Shastri Nagar. Fishing in the creeks and bays is carried out using gill nets and hook and line. Fishing by tribes is on a subsistence basis employing spears and hook and line. Much of the development resulted from the establishment of Government and Administrative facilities in Campbell Bay area.

Indigenous Tribes

Great Nicobar Island is the land of two indigenous tribal population viz. Shompen and Nicobarese. The Shompen inhabit the interior forest. They are shy in nature and avoid contact with outsiders. They live around and along the perennial freshwater rivers and constructs huts using palm and pandanus leaves. The Shompens are hunters and food gatherers leading a semi-nomadic life. They cultivate yams, pandanus, coconuts,

arecanuts, bananas etc. They maintain small herds of pigs and also hunt wild pigs with spears and fish with harpoons.

The Nicobarese are horticulturists. Coconut, pandanus, banana, papaya, yam and other starchy roots and tubers are their principal items of crop. They also depend for food on hunting and fishing. Pig rearing is an important traditional job of Nicobarese. The Nicobarese live in villages located along the coast. The huts are made of wooden logs, stems of areca palm, coconut palm etc. while the roof is thatched with grass, canes, bamboo and coconut leaves. At present their traditional beliefs and customs are changing and modern education and Government jobs are readily accepted if they are in their own place.

Climate

The Great Nicobar Island falls under the tropical rainforest zone of the world. Annual rain fall in the northern part is about 3800mm while in southern part it is about 3000mm. Temperature ranges from 22°C - 32°C. Monsoon extends from April to December. January to March is fairly a dry period. Relative Humidity varied from 70 - 82%. Rough weather prevails at the beginning of southwest monsoon. Mean wind speed ranges from 5-15 km/h, however, June to September experiences high wind speed (25km/h). Maximum sunshine observed between 8 and 10 hrs during January to March while in monsoon season sunshine will be 2-3 hrs.

Geomorphology

The soil of the Great Nicobar is mostly with the combination of entisols (fluvents), entisols (psaments) and inceptisols (ochrepts). The soil nearer to the surface of the coastal areas, were formed from the marine deposits during the tidal floods. The coastal flats have an admixture of sand, silty clay and diluvial material with fine fragments of coral lime. Soil cover is rather thin, varying from 2m to 5m and mostly alluvial on hill tops. In general the soil is mild to moderately acidic with high humus top.

Impact of tsunami cum earthquake

In December 2004, tsunami has affected the littoral forests and the marine biodiversity of this island. Earthquake caused the permanent inundation of landmass by 1m. The gradual development during post-tsunami era also affected the coastal and marine biodiversity of this island. There is no earlier study was made available on marine faunal communities of this island which can be considered as the base line data to compare the recent records. Hence it is prerequisite to record the presence faunal communities and their status in and around the Great Nicobar Island which will be useful to make valuable management plan for the conservation of marine biodiversity.

REVIEW OF LITERATURE

There is relatively very little information on the marine faunal communities of Great Nicobar Island when compared to other island group in Andaman. Rink in the year 1847 initiated the taxonomy of corals collected from Nicobar Islands. Alcock (1893) conducted the earliest surveys on these islands and described general topography. Later Alcock (1902) described 25 species of deep sea *Madreporaria* dredged by Royal Indian Mairne Survey Ship *Investigator* from depth of more than hundred fathoms, around Andaman Islands. Sewell (1922) provided the first account of the ecology and formation of reefs in the region after visiting the Nicobar Islands. Jeyabaskaran (1999) conducted the quantitative survey of benthic cover in 6 islands of Andaman and Nicobar including Great Nicobar Island. Rajasekaran and Fernando (2009) reported 14 species of polychaetes under the family Nereidae from the intertidal region of Great Nicobar Island. Recently several studies on marine faunal communities in coral reef ecosystem of Andaman and Nicobar Islands were conducted by Zoological Survey of India, Port Blair, which includes the Great Nicobar Island also. Among them opisthobranchs (Ramakrishana *et al.*, 2010; Sreeraj *et al.*, 2012), status of corals (Raghunathan *et al.*, 2010; Raghuraman *et al.*, 2012), marine fauna (Kailash Chandra *et al.*, 2012), distribution of archaeogastropod *Trochus niloticus* (Raghunathan *et al.*, 2012), dangerous and venomous marine animals (Venkataraman *et al.*, 2012), Faviid corals (Tamal Mondal *et al.*, 2012), sea cow *Dugong dugon* (Raghunathan *et al.*, 2012a) are worth mentioning. Recently Raghunathan *et al.* (2012b) studied the diversity of coral and its associated fauna such as sponge, echinoderm, molluscs and crabs from three localities in Great Nicobar Island. Since no detailed studies on the faunal communities in littoral and sub-littoral region of Great Nicobar, the present investigation has been made.

MATERIAL AND METHODS

The study was conducted during 2008-2012 in the intertidal and subtidal region upto the depth of 30m at nine reef areas of Great Nicobar Island viz. Laxman Beach (Lat. 07°01.454'N, Long. 093°55.267'E), B' Quarry (Lat. 06°59.842'N, Long. 093°56.778'E), Joginder Nagar (Lat. 06°56.372'N, Long. 093°54.999'E), Laxmi Nagar (Lat. 06°53.827'N, Long. 093°53.976'E), Gandhi Nagar (Lat. 06°51.056'N, Long. 093°53.769'E), Shastry Nagar (Lat. 06°47.856'N, Long. 093°53.177'E), Galathea Mouth (Lat. 06°49.220'N, Long. 093°51.900'E), Indira Point (Lat. 06°45.512'N, Long. 093°49.646'E) and Kopen Heat (Lat. 06° 50.923'N, Long. 093° 47.983'E) were selected randomly to carry out the faunal survey (Fig. 1 and Plate 1&2). Status survey was also carried out as mass bleaching was recorded during May and June 2010.

The SCUBA diving was employed in the subtidal regions and in shallow water snorkeling was opted for faunistic surveys. Besides, intertidal surveys were also

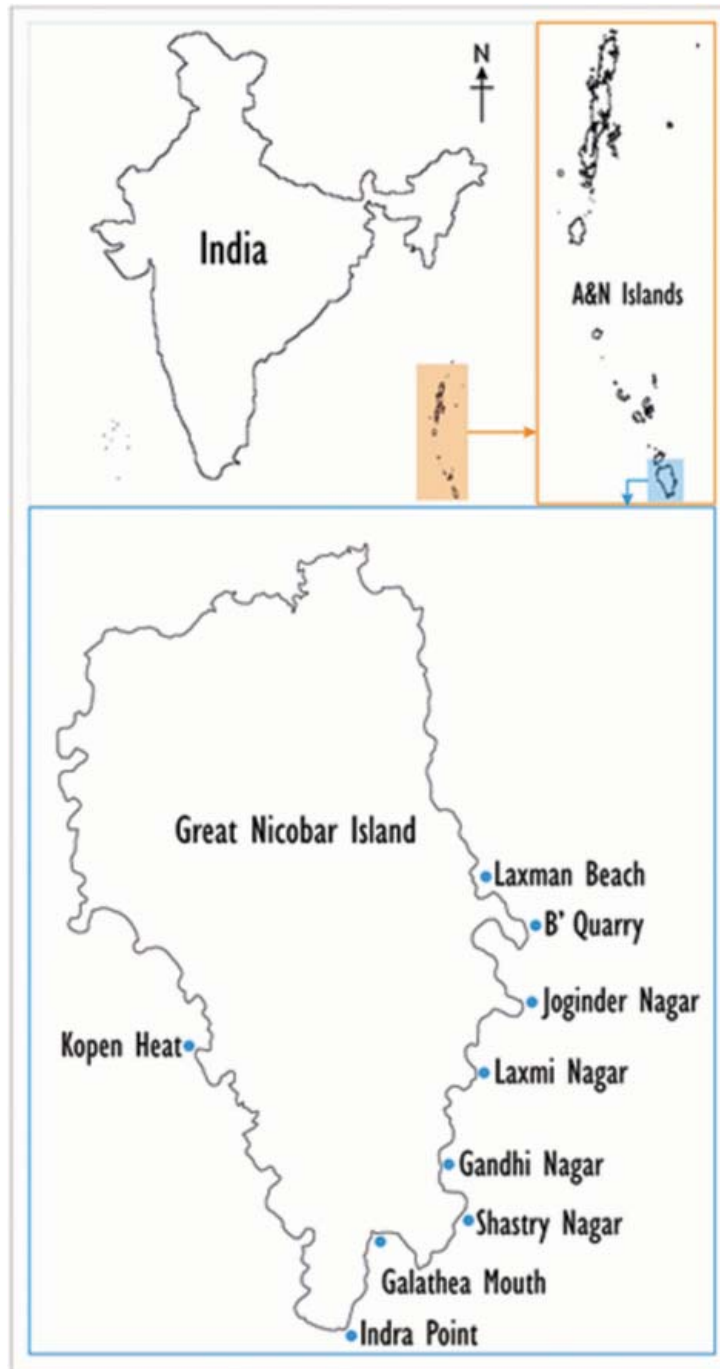


Fig. 1. Study areas in Great Nicobar Island

conducted during low tides. The status of corals and its associated faunal communities in terms of density and diversity were assessed by Line Intercept Transect Method (LIT) following English *et al.* (1994). Zooplankton samples were collected by surface haul using Heron-Tranter plankton net having 0.7m dia mouth, 3m long with a mesh size of 200 μ for 10 minutes at 2 knot speed, whereas for phytoplankton, fifty litres of seawater samples were concentrated to 250ml by filtering through 20 μ mesh sized plankton net. The intertidal and subtidal macrobenthos in the study area are estimated during low tide by quadrat method (Reys, 1964). The surface seawater quality parameters such as salinity by Refractometer, Model ERMA; temperature and pH by Water Quality Analyser, Model SYSTONICS; transparency by Secchi disc; turbidity by Turbidity Meter, Model EUTECH Instruments ECTN100IR were measured in all the study sites. In order to study the meio-benthos, sediment samples were collected by plastic core and sieved through 63 μ mesh. The results were expressed for no. of organisms/m² area. All the collected specimens were preserved in 4% formalin and the specimens of sponges and echinoderms preserved in 70% ethyl alcohol for further taxonomical studies in the laboratory.

The samples of phytoplankton were identified under microscope following the monograph (Husted, 1930). The zooplankton was identified by referring standard manuals and monographs. The results of zooplankton were expressed as ml/100m³ of seawater. Digitization of individual species of macrofauna was made by underwater camera (Sony-Cyber Shot, Model-T900 with underwater housing, 12.1 megapixels). Corals were identified in conjunction with Veron and Pichon (1976, 1979, 1982), Veron *et al.* (1977), Veron and Wallace (1984), Veron (2000) and Wallace (1999). Identification of echinoderms was made in conjunction with the key characters prepared by Clarke and Rowe (1971); Sastry (2005 and 2007). Molluscs were identified following Rao (2000 and 2003). Opisthobranchs were identified following Ramakrishna *et al.* (2010) and Gosliner *et al.* (2008). Polyclads were identified following the literature of Newman and Cannon (2003, 2005). Fishes were identified in conjunction with Allen *et al.* (2003). The specimens of crabs collected during the survey were identified following Chhapgar (1957) and Sakai (1976). In case of shrimps, the keys made by Poupin and Juncker (2010) and lobsters the key characters prepared by Poupin and Juncker (2010) were followed.

Statistical Analysis

The Shannon-Weaner index (H') (Shannon and Weaner, 1964) diversity index of all the faunal components recorded during the study was calculated using the following formula.

$$H' = -\sum p_i \ln p_i$$

Where, p_i = Proportion of number of individual of a particular species and total number of individual of all the species, H' = diversity of a theoretically infinite population.

Simpson's diversity index (Simpson, 1949) is one of the truthful indices to calculate the species diversity of any study site. It has been applied to calculate the species diversity of scleractinian corals of those islands. The formula for the Simpson index is:

$$D = 1 - \sum_{i=1}^S \frac{ni(ni - 1)}{N(N - 1)}$$

Where S is the number of species, N is the total percentage cover or total number of organisms and n is the percentage cover of a species or number of organisms of a species. In this form, D ranges from 1 to 0, with 1 representing infinite diversity and 0 representing no diversity.

Evenness of a community was described by the Pielou's Evenness Index (J'). The formula of the index (Pielou, 1966) is:

$$J' = H' / H'_{\max}$$

Where H' is the number derived from the Shannon diversity.

Menhinick diversity index (Menhinick, 1964) was calculated by using of the formula given below:

$$d = S / \sqrt{N}$$

Where, S = Total number of species, and N = Total number of individuals.

Margalef's community index (Margalef, 1968) was calculated by using the following formula below:

$$d = S - 1 / \log N$$

Where, S = Total number of species, and N = Total number of individuals.

Berger-Parker diversity index (Berger & Parker, 1970) was calculated by the following formula given below:

$$d = N_{\max} / N$$

Fisher alpha diversity index (Fisher, 1925) was also calculated.

Similarity Index is the simple measure of the extent to which two habitats species in common. The Sørensen index, also known as Sørensen's similarity coefficient, is a statistic used for comparing the similarity of two samples (Sørensen, 1948). It has been formulated below.

$$QS = (2C / A + B)$$

Where, A and B are the species numbers in samples A and B , respectively, and C is the number of species shared by the two samples. This expression is easily extended

to abundance instead of incidence of species. This quantitative version of the Sørensen index is also known as Czekanowski index.

RESULTS

Physico-chemical parameters

The physio-chemical parameters of seawater are the prime factors indicating the health of the coastal waters which directly influence the primary and secondary productivities, and tertiary producers in the marine environment. The data on these parameters obtained from seawater samples collected from all the places of present study and the results are depicted in table 1. The mean surface seawater temperature ranged from 26.0 to 28.0°C at both Shastry Nagar and Joginder Nagar, and Indira Point and Kopen Heat respectively. The difference of salinity range (32.10 to 33.59 ppt) might be attributed to the rainfall followed by freshwater stream runoff in these regions at the time of study. The concentration of hydrogen ions (pH) varied between stations and it was 7.2 in Gandhi Nagar and Galathea Mouth to 7.7 at Indira Point. The transparency in terms of penetration of light in the seawater column was also measured at all the places and it ranged from 5.5 m in Lakshmi Nagar and Galathea Mouth to 7.5 m at Joginder Nagar, B' Quarry and Kopen Heat. The turbidity of seawater was also measured by Nudson Turbidity Unit (NTU) and it was found minimum (710) at Kopen Heat and maximum (930) at Shastry Nagar. The intertidal exposure during low tide at the surveyed area ranged from 20 to 70 m at Laxman Beach and Shastry Nagar respectively.

Table 1. Physico-chemical parameters in seawater at study areas in Great Nicobar Island

Sl. No.	Area	Temp. (°C)	Salinity (ppt)	pH	Transparency (m)	Turbidity (NTU)	Intertidal exposure (m)
1.	Laxman Beach	27.0	33.40	7.4	7.0	840	20
2.	B' Quarry	27.0	33.49	7.4	7.5	830	35
3.	Joginder Nagar	26.0	33.45	7.6	7.5	750	20
4.	Laxmi Nagar	27.5	32.10	7.2	5.5	780	25
5.	Gandhi Nagar	26.5	33.12	7.4	7.0	840	35
6.	Shastry Nagar	26.0	33.45	7.6	6.5	930	70
7.	Galathea Mouth	27.0	32.10	7.2	5.5	780	50
8.	Indira Point	28.0	33.59	7.7	7.0	720	30
9.	Kopen Heat	28.0	33.45	7.6	7.5	710	40

Phytoplankton

A total of 42 species of phytoplankton were identified from Great Nicobar Island. Among them a maximum of 41 species were reported from Laxman Beach whereas the minimum of only 20 species were recorded from Gandhi Nagar. The maximum species diversity (2.21) was found at Laxman Beach where as the minimum (0.98) was observed at Gandhi Nagar area (Table 2). Among the phytoplankton reported *Coscinodiscus* sp. is the only species found in all the places of study. *Actinotychus undulatus*, *Climacosphenia moniligera*, *Coelosphaericum kuetzingianum*, *Fragillaria crotonensis*, *Protoperidinium depressum*, *Grammatophora mirificum* are the species found in most of the places of study except any one of the places. *Coscinodiscus eccentricus* was found only in Laxman Beach and Kopen Heat. Other species of phytoplankton reported from the study have different degree of distribution.

Table 2: Phytoplankton diversity in Great Nicobar Island

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Lakshmi Naga	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira point	Kopen Heat
1	<i>Actinotychus undulatus</i>	+	+	+	+	+	+	+	+	-
2	<i>Amphora lineolata</i>	+	+	+	-	+	+	+	-	+
3	<i>Amphora ostreoria</i>	+	-	+	+	-	+	-	+	+
4	<i>Asteronella japonica</i>	+	+	+	-	+	+	+	-	+
5	<i>Biddulphia heteroceros</i>	+	+	-	+	-	-	-	+	+
6	<i>Campylodiscus iyengarii</i>	+	-	-	-	+	+	+	-	-
7	<i>Ceratium axiale</i>	+	+	+	+	-	+	+	+	-
8	<i>Ceratium azoricum</i>	+	+	-	+	+	-	-	+	+
9	<i>Ceratium furca</i>	+	-	+	-	-	+	+	-	+
10	<i>Ceratium triceros</i>	+	+	-	+	-	+	+	-	+
11	<i>Chaetoceros coarctatus</i>	+	-	-	+	+	+	+	-	+
12	<i>Chaetoceros lorenzianus</i>	+	-	+	+	-	+	-	-	+
13	<i>Climacosphenia moniligera</i>	+	+	+	+	-	+	+	+	+
14	<i>Closterium</i> sp.	-	-	+	-	+	+	+	-	-
15	<i>Coelosphaericum kuetzingianum</i>	+	+	+	+	-	+	+	+	+

Table 2. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Lakshmi Naga	Gandhi Nagar	Shastri Nagar	Galathea Mouth	Indira point	Kopen Heat
16	<i>Coscinodiscus eccentricus</i>	+	-	-	-	-	-	-	-	+
17	<i>Coscinodiscus oculus iridis</i>	+	-	-	-	+	+	+	-	+
18	<i>Coscinodiscus</i> sp.	+	+	+	+	+	+	+	+	+
19	<i>Cyclotella stelligera</i>	+	-	+	-	-	+	+	-	-
20	<i>Fragillaria crotonensis</i>	+	+	+	+	+	+	-	+	-
21	<i>Fragillaria oceanica</i>	+	-	+	+	-	+	+	+	+
22	<i>Gossleriella tropica</i>	+	-	-	-	+	+	+	-	+
23	<i>Grammatophora mirificum</i>	+	+	+	+	+	+	-	+	+
24	<i>Gyrosigma balticum</i>	+	-	+	-	+	+	-	-	+
25	<i>Hemiculus hauckii</i>	+	-	+	+	-	+	+	+	+
26	<i>Lyngbya confervoides</i>	+	+	+	+	-	+	+	+	-
27	<i>Melosira</i> sp.	+	-	-	-	-	+	+	-	+
28	<i>Nitzschia seriata</i>	+	-	+	+	+	-	-	+	+
29	<i>Ornithocerus steinii</i>	+	+	+	-	-	+	+	+	-
30	<i>Pediastrum simplex</i>	+	+	-	+	-	+	-	+	+
31	<i>Phyrophacus harologicum</i>	+	+	-	+	+	+	+	-	-
32	<i>Pleurosigma angulatum</i>	+	+	-	+	-	-	-	+	+
33	<i>Pleurosigma elongatum</i>	+	-	-	-	-	+	+	-	-
34	<i>Prorocentrum maximum</i>	+	+	-	+	-	+	+	+	+
35	<i>Protoperidinium depressum</i>	+	-	+	+	+	+	+	+	+
36	<i>Protoperidinium oceanicum</i>	+	+	+	+	-	+	+	-	+
37	<i>Rhaphoneis discoides</i>	+	+	+	+	-	+	-	+	+
38	<i>Rhizosolenia cylindricus</i>	+	-	-	-	+	+	+	-	-
39	<i>Striatella delicatula</i>	+	+	-	+	+	-	-	+	+
40	<i>Surirella maximum</i>	+	-	-	-	-	+	+	+	+

Table 3. contd.

Sl. No.	Species	Laxman Beach	B Quarry	Joginder Nagar	Lakxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
3	<i>Cibicides lobatulus</i> d'Orbigny	+	+	+	+	-	+	+	+	+
4	<i>Calcarina calcar</i> d'Orbigny	+	-	-	-	-	+	-	+	+
5	<i>Globigerina tricolunoides</i>	-	+	+	-	+	-	+	+	+
6	<i>Loxostomum limbatum</i> var <i>costulatum</i> (Cushman)	-	+	+	+	-	+	+	+	+
7	<i>Loxostomum rostrum</i> (Brady)	+	-		+	-	+	-	+	+
8	<i>Loxostomum truncatum</i> Phleger and Parker	+	-	+	+	+	+	+	+	+
9	<i>Planobulina mediterranensis</i> d'Orbigny	+	+	+	+	-	+	+	-	+
10	<i>Quinqueloculina seminulum</i> (Linne)	+	-	+	+	+	+	+	+	+
11	<i>Quinqueloculina subcuneata</i> Cushman	+	+	-	-	+	+	-	+	+
12	<i>Rosalina floridana</i> (Cushman)	-	-	+	-	+	+	+	-	-
13	<i>Rosalina globularis</i> d'Orbigny	+	+	+	-	-	+	+	+	+
14	<i>Rosalniabadyi</i> (Cushman)	-	-	+	-	-	+	+	+	+
15	<i>Siphoni areticulata</i> (Czjzek)	-	-	+	-	+	+	-	-	+
16	<i>Spirillina lateseptata</i>	+	+	-	+	-	+	-	+	+
17	<i>Triloculina blonga</i> (Montagu)	+	+	+	+	-	-	+	-	-
	(2) Appendicularians									
	<i>Oikopleura dioica</i>	+	+	+	+	+	+	+	+	+
	(3) Copepods				-					
18	<i>Acartia southwelli</i> Sewell	+	+	+	-	-	+	+	+	+
19	<i>Acrocalanus gracilis</i> Giesbrecht	-	+	+	+	+	+	+	+	+
20	<i>Corycaeus catus</i> F. Dahl	-	-	-	-	-	+	-	+	+
21	<i>Corycaeus sdanae</i> Giesbrecht	+	+	+	-	-	+	+	+	-
22	<i>Corycaeus speciosus</i> Dana	+	-	+	+	+	+	+	+	-
23	<i>Centropages dorsispinatus</i>	-	+	+	-	-	+	+	+	+

Table 3. contd.

Sl. No.	Species	Laxman Beach	B Quarry	Joginder Nagar	Lakxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
24	<i>Euchaeta concinna</i>	+	-	+	+	+	+	+	+	-
25	<i>Eucalanus attenuatus</i> (Dana)	+	-	+	+	-	+	+	+	+
26	<i>Euterpina acutifrons</i> (Dana)	-	+	+	+	+	+	-	-	+
27	<i>Longipedia weberi</i> A. Scott	+	-	+	+	+	+	+	+	+
28	<i>Lucicutia flavicornis</i> (Claus)	-	-	+	-	-	-	+	-	+
29	<i>Macrocypris mima</i>	+	+	+	-	-	+	+	+	-
30	<i>Macrosetella gracilis</i> (Dana)	+	-	+	-	+	+	+	+	+
31	<i>Metacalanus aurivilli</i> Cleve	+	+	+	+	-	+	+	-	+
32	<i>Metis jausseamei</i> (Richard)	+	-	+	-	-	+	-	+	+
33	<i>Microsetella norvegica</i> (Boeck)	-	-	+	-	-	+	+	+	-
34	<i>Nannocalanus minor</i> (Claus)	+	+	+	+	+	+	+	+	+
35	<i>Oithona brevicornis</i> Giesbrecht	-	-	+	-	-	+	+	+	+
36	<i>Oithona similis</i> Claus	+	+	+	-	-	+	-	+	+
37	<i>Oncaea venusta</i> Philippi	-	-	+	+	+	-	+	-	+
38	<i>Paracalanus parvus</i> (Claus)	+	-	+	+	+	+	+	-	+
39	<i>Pontella danae</i> Giesbrecht	+	+	+	+	+	+	+	+	-
40	<i>Pontellina plumata</i> (Dana)	+	+	+	+	-	+	+	+	+
41	<i>Pseudodiaptomus serricaudatus</i> (T. Scott)	-	+	+	+	-	+	+	+	+
42	<i>Sapphirina nigromaculata</i> Dana	-	+	+	-	+	-	+	-	+
43	<i>Sapphirina ovatolancoelata</i> Dana	+	-	+	+	-	+	+	+	+
44	<i>Temoradis caudate</i> Giesbrecht	+	-	+	-	+	+	+	+	+
	(4). Amphipods									
45	<i>Hyperia medusarum</i>	-	+	-	-	+	+	-	+	+
	(5). Isopods									
46	<i>Angeliella phreaticola</i> Chappuis and Delamare-Deboutville, 1952	-	+	+	-	-	+	+	+	+

Table 3. contd.

Sl. No.	Species	Laxman Beach	B Quarry	Joginder Nagar	Lakxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
66	<i>Porpita porpita</i>	+	-	+	-	-	+	+	+	-
	(16). Molluscs									
67	<i>Janthina janthina</i>	+	+	+	+	+	+	+	+	+
68	<i>Spiratella</i> sp.		+		+					+
69	Veliger larva	+	-	+	+	-	+	+	+	+
	(17). Salpids (Desmomyaria)									
70	<i>Salpa maxima</i>	+	-	+	-	+	+	-	+	+
	(18). Opisthobranchs									
71	<i>Crseis acicula</i>	+	+	+	+	-	-	+	-	+
	(19). Pisces									
72	Fish eggs	+	+	+	+	+	+	+	+	+
	Total number of species	46	41	58	41	35	60	53	53	61
	Species diversity (H')	3.576	3.396	3.842	3.586	3.429	3.79	3.752	3.684	3.759

Meio-Benthos

The density of meio-benthos studied from nine areas of Great Nicobar Island. A total of 13 groups of benthic organisms were reported from all nine places. In general, moderately low differences could be observed on the density of these organisms between the places. Nematoda showed high density (18500 individuals/m²) in Kopen Heat. Tunicates usually showed the low density (below 5000 individuals/m²) at all stations except Shastry Nagar (Table 4).

Table 4. Density of meio-benthos in study area

Sl. No.	Groups	Density (No./m ²)								
		Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
1	Ostrocaoda	4500	4320	5480	5200	4950	5390	5400	4010	6080
2	Oligochaeta	3900	4210	5300	4500	4800	5000	4200	3400	7600

Table 4. *contd.*

3	Polychaeta	11200	9800	10100	8500	10400	9000	10100	9500	12100
4	Copepoda	8700	8300	9200	7800	8500	7900	9000	8300	9600
5	Tunicata	3800	4200	3800	5200	4800	5300	4200	5000	5400
6	Coelenterata	11500	12450	10700	8900	11200	13600	14000	13100	15800
7	Turberllarian	13100	12800	11600	12400	12000	9900	12100	12400	12700
8	Foraminifera	6800	7200	6800	7500	5900	6300	7800	8100	8450
9	Nematoda	16400	18200	17700	15900	17200	16700	17100	16300	18500
10	Isopoda	8500	7800	7200	9600	6700	8200	8400	9200	9100
11	Amphipoda	7100	8200	7600	6500	7000	7700	7000	6300	8200
12	Nemertina	7300	6550	7500	6700	7200	6900	6200	7100	7100
13	Gastrotricha	5100	6200	5400	6250	6100	5600	5000	6450	6400

Sponges

A total of 25 species of sponges belonging to 20 genera and 16 families were reported from the nine study areas of Great Nicobar Island during the surveys (Table 5). A maximum number of 14 species belonging to 13 genera and 10 families were observed from Gandhi Nagar whereas the minimum was only 3 at Indira Point under 3 genera and 3 families (Plate 3-5).

Variation in diversity, dominance, evenness, community and equitability indices of sponges was calculated depending upon the recorded data from the nine study areas of Great Nicobar Island. Shannon-Weaner Diversity indices reveals that Gandhi Nagar showed highest degree of diversity with 2.582 whereas Indira Point showed the lowest 1.099. The Menhinick Diversity index implies that Gandhi Nagar was more diversified (3.3) while the Shashtry Nagar was least diversified (1.633) (Fig. 3). Equitability indices of sponges were maximum at Indira Point (1) and minimum was seen at Shastry Nagar (0.8962). Pileou's Evenness index was high at Indira Point (1) whereas minimum was seen at Shastry Nagar (0.866). Simpson's Diversity Index showed higher values at Gandhi Nagar (0.9198) and minimum at Shastry Nagar and Indira Point area (0.6667) respectively (Fig. 4). Margalef Community Index showed greater value for Gandhi Nagar (4.498) area whereas the lowest value for Shastry Nagar (1.674). Fisher Alpha Diversity Index showed maximum value for Galathea Mouth (64.11) area while the minimum value for Indira Point (0) area (Fig. 5). Dominance Index showed a maximum value for Indira Point and Shastry Nagar (0.3333) and minimum value for Gandhi Nagar (0.08025). Berger-Parker Diversity Index was high at Shastry Nagar (0.5) and low (0.1111) at Gandhi Nagar (Fig. 6).

The species similarity of sponges at nine sites of Great Nicobar Island was calculated. Maximum similarity (0.64) was observed between Gandhi Nagar & Galathea Mouth whereas the minimum (0.11) was between B' Quarry & Joginder Nagar and Gandhi Nagar & Shastry Nagar area respectively (Table 6). However no species similarity could be found between Joginder Nagar & Shastry Nagar, Shastry Nagar & Galathea Mouth, Joginder Nagar & Indira Point and Shastry Nagar & Indira Point.

Table 5. Sponges of Great Nicobar Island

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Phylum: PORIFERA Grant, 1836 Class: DEMOSPONGIAE Sollas, 1885 Order: HOMOSCLEROPHORIDA Dendy, 1905 Family: PLAKINIDAE Schulze, 1880									
	Genus: <i>Plakortis</i> Schulze, 1880									
1	<i>Plakortis simplex</i> Schulze, 1880	-	-	+	-	+	-	+	-	+
	Order: SPIROPHORIDA Bergquist & Hogg, 1969 Family: TETILLIDAE Sollas, 1886 Genus: <i>Paratetilla</i> Dendy, 1905									
2	<i>Paratetilla bacca</i> (Selenka, 1867)	+	+	-	-	-	+	-	-	-
	Order: ASTROPHORIDA Sollas, 1888 Family: ANCORINIDAE Schmidt, 1870 Genus: <i>Rhabdastrella</i> Thiele, 1903									
3	<i>Rhabdastrella globostellata</i> (Carter, 1883)	-	-	-	+	+	-	+	+	-
	Genus: <i>Ecionemia</i> Bowerbank, 1864									
4	<i>Ecionemia acervus</i> Bowerbank, 1864	+	-	+	-	+	-	-	-	-
	Order: HADROMERIDATOPSENT, 1894 Family: CLIONAIDAE D'Orbigny, 1851 Genus: <i>Cliona</i> Grant, 1826									
5	<i>Cliona varians</i> (Duchassaing & Michelotti, 1864)	-	+	-	-	-	+	-	-	-

Table 5. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
6	<i>Cliona ensifera</i> Sollas, 1878	-	-	-	-	+	-	-	-	-
	Genus: <i>Spheciospongia</i> Marshall, 1892									
7	<i>Spheciospongia vagabunda</i> (Ridley, 1884)	+	-	-	+	-	-	+	-	-
	Family: SPIRASTRELLIDAE Ridley & Dendy, 1886									
	Genus: <i>Spirastrella</i> Schmidt, 1868									
8	<i>Spirastrella cunctatrix</i> Schmidt, 1868	-	-	-	-	+	-	-	-	+
	Family: TETHYIDAE Gray, 1848									
	Genus: <i>Stellitethya</i> Sara, 1994									
9	<i>Stellitethya repens</i> (Schmidt, 1870)	+	-	+	-	+	-	-	-	-
	Order: POECILOSCLERIDA Topsent, 1928									
	Family: MICROCIONIDAE Carter, 1875									
	Genus: <i>Clathria</i> Schmidt, 1862									
10	<i>Clathria (Thalysias) vulpine</i> (Lamarck, 1814)	+	+	-	-	-	-	-	-	-
11	<i>Clathria (Thalysias) cervicornis</i> (Thiele, 1903)	+	-	-	+	+	+	-	-	-
	Family: CRAMBEIDAE Levi, 1963									
	Genus: <i>Monanchora</i> Carter, 1883									
12	<i>Monanchora arbuscula</i> (Duchassaing&Michelotti, 1864)	+	-	+	-	-	-	+	-	+
	Family: CRELLIDAE Dendy, 1922									
	Genus: <i>Crella</i> Gray, 1867									
13	<i>Crella (Grayella) cyathophora</i> Carter, 1869	-	+	-	-	-	-	-	-	-
	Family: IOTROCHOTIDAE									
	Genus: <i>Iotrochota</i> Ridley, 1884									
14	<i>Iotrochota baculifera</i> Ridley, 1884	-	+	-	-	+	-	+	-	-

Table 5. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Family: TEDANIDAE Ridley & Dendy, 1886 Genus: <i>Tedania</i> Gray, 1867									
15	<i>Tedania (Tedania) anhelans</i> (Lieberkühn, 1859)	-	-	-	-	+	-	+	+	+
	Family: MYCALIDAE Lundbeck, 1905 Genus: <i>Mycale</i> Gray, 1867									
16	<i>Mycale (Aegogropila) crassissima</i> (Dendy, 1905)	-	+	-	+	-	-	-	-	-
	Family: ISODICTYIDAE Dendy, 1924 Genus: <i>Coelocarteria</i> Burton, 1934									
17	<i>Coelocarteria singaporensis</i> (Carter, 1883)	-	+	-	-		+	-	-	+
	Order: Halichondrida Gray, 1867 Family: AXINELLIDAE Carter, 1867 Genus: <i>Axinella</i> Schmidt, 1862									
18	<i>Axinella acanthelloides</i> Pattanayak, 2006	+	-	+	-	+	-	-	-	-
19	<i>Axinella cannabina</i> (Esper, 1794)	+	+	-	-	-	-	-	-	+
	Family: DICTYONELLIDAE Van Soest, Diaz & Pomponi, 1990 Genus: <i>Acanthella</i> Schmidt, 1862									
20	<i>Acanthella klethra</i> Pulitzer-Finali, 1982	-	-	-	+	+	-	+	-	-
	Genus: <i>Liosina</i> Theile, 1899									
21	<i>Liosina paradoxa</i> Thiele, 1899	-	-	-	-	-	-	-	-	-
	Genus: <i>Stylissa</i> Hallmann, 1914									
22	<i>Stylissa carteri</i> (Dendy, 1889)	+	-	+	-	+	-	+	+	+
23	<i>Stylissa massa</i> (Carter, 1887)	+	+	-	-	-	-	-	-	-

Table 5. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Order: HAPLOSCLERIDA Topsent, 1928 Family: CALLYSPONGIDAE de Laubenfels, 1936 Genus: <i>Callyspongia</i> Duchassaing & Michelotti, 1864									
24	<i>Callyspongia (Toxochalina) multiformis</i> (Pulitzer-Finali, 1986)	-	-	-	-	+	-	+	-	-
25	<i>Callyspongia (Euplacella) australis</i> (Lendenfeld, 1887)	+	+	+	+	+	-	+	-	+
	Total No. of species	12	10	7	6	14	4	10	3	8
	Total No. of genera	9	10	7	6	13	4	9	3	8
	Total No. of families	8	10	7	6	10	4	10	3	8

Table 6. Similarity Index of Sponges at nine sites of Great Nicobar Island

	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
Laxman Beach	0.45	0.63	0.33	0.46	0.25	0.34	0.13	0.4
B' Quarry		0.11	0.25	0.16	0.42	0.28	0.15	0.33
Joginder Nagar			0.15	0.57	0	0.44	0	0.53
Laxmi Nagar				0.40	0.2	0.47	0.22	0.28
Gandhi Nagar					0.11	0.64	0.23	0.45
Shastry Nagar						0	0	0.16
Galathea Mouth							0.28	0.52
Indira Point								0.18

Out of 27 families of sponges reported from Andaman and Nicobar Islands, 16 families found in Great Nicobar Island through the present study, family Dictyonellidae registered a maximum of 4 species while most of the families represented with either single species or two species only except Clionaidae in which 3 species recorded (Table

7). As per the existing database of ZSI, 26 species of sponges reported from these 16 families from entire Andaman and Nicobar Islands, of which the present study reported 25 species (96.15%) from Great Nicobar Island.

Table 7. Percentage composition of different families of sponges at Great Nicobar Island

Sl. No.	Family	No. of species at A & N Islands	No. of species at Great Nicobar Island	% of species at Great Nicobar Island
1	Plakinidae	1	1	100%
2	Tetillidae	1	1	100%
3.	Ancorinidae	2	2	100%
4.	Clionidae	3	3	100%
5.	Spirastrellidae	1	1	100%
6.	Tethyidae	1	1	100%
7.	Microcionidae	2	2	100%
8.	Crambeidae	1	1	100%
9.	Crellidae	1	1	100%
10.	Iotrochotidae	1	1	100%
11.	Tedanidae	1	1	100%
12.	Mycalidae	1	1	100%
13.	Isodictyidae	2	1	50%
14.	Axinellidae	2	2	100%
15.	Dictyonellidae	4	4	100%
16.	Callyspongidae	2	2	100%
	Total	26	25	96.15%

Scleractinian Corals

Scleractinian corals are the most important marine faunal communities with the ability to sustain a framework of basic ecosystem in its environment. A total of 172 species of scleractinian corals belonging to 47 genera and 13 families were reported from the nine study areas of Great Nicobar Island during the surveys (Table 8). Among them the family Faviidae is dominant as it represented by 57 species. A maximum number of 102 species belonging to 40 genera and 13 families were observed from Laxman Beach whereas the minimum of 14 species under 8 genera and 5 families at Laxmi Nagar. The data collected for corals revealed that none of the species was commonly occurred at all 9 places of study in Great Nicobar Island. However, *Pocillopora damicornis*, *Galaxea*

fascicularis, and *Favia matthaii* were found at all the places except any one of the area. Besides, 62 species were restricted to any one of the locations of study area (Table 8). Remaining species of scleractinian corals have different degree of distribution in Great Nicobar Island (Plate 6-11).

Table 8. Scleractinian Corals of Great Nicobar Island

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Phylum: CNIDARIA Hatschek, 1888 Class: ANTHOZOA Ehrenberg, 1931 Order: SCLERACTINIA Bourne, 1900 Family: ACROPORIDAE Verrill, 1902									
	Genus: <i>Acropora</i> Oken, 1815									
1.	<i>Acropora aspera</i> (Dana, 1846)	-	-	-	-	-	-	+	+	-
2.	<i>Acropora microphthalma</i> (Verrill, 1859)	+	-	-	-	-	-	+	-	-
3.	<i>Acropora robusta</i> (Dana, 1846)	+	-	-	-	-	-	+	-	-
4.	<i>Acropora humilis</i> (Dana, 1846)	+	+	-	-	-	-	+	+	-
5.	<i>Acropora desalwii</i> Wallace, 1994	+		-	-	+	-	-	-	-
6.	<i>Acropora chesterfieldensis</i> (Veron & Wallace, 1984)	-	-	-	-	-	-	-	+	-
7.	<i>Acropora cerealis</i> (Dana, 1846)	-	-	-	-	-	-	-	+	-
8.	<i>Acropora ocellata</i> (Klunzinger, 1879)	-	-	-	-	-	-	-	-	+
9.	<i>Acropora nasuta</i> (Dana, 1846)	+	-	-	-	+	-	+	-	-
10.	<i>Acropora papillare</i> (Latypov, 1992)	-	-	-	-	-	-	-	+	-
11.	<i>Acropora pulchra</i> (Brook, 1891)	-	-	-	-	+	-	-	-	-
12.	<i>Acropora formosa</i> (Dana, 1846)	-	-	-	-	+	-	+	+	+
13.	<i>Acropora monticulosa</i> (Bruggemann, 1879)	+	-	-	-	-	-	+	+	+
14.	<i>Acropora nobilis</i> (Dana, 1846)	-	-	-	-	-	-	+	+	-
15.	<i>Acropora abrotanoides</i> (Lamarck, 1816)	-	-	-	-	-	-	-	-	+
16.	<i>Acropora hyacinthus</i> (Dana, 1846)	+	-	-	-	-	-	+	-	-
17.	<i>Acropora gemmifera</i> (Brook, 1892)	-	+	-	-	+	+	+	+	+

Table 8. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
18.	<i>Acropora spicifera</i> (Dana, 1846)	-	-	-	-	-	-	-	+	-
19.	<i>Acropora latistella</i> (Brook, 1891)	+	-	-	-	+	-	-	-	-
20.	<i>Acropora dendrum</i> (Bassett-Smith, 1890)	-	-	-	-	-	-	+	-	-
21.	<i>Acropora palifera</i> (Lamarck, 1816)	-	-	-	-	-	-	+	-	+
	Genus <i>Montipora</i> de Blainville, 1830									
22.	<i>Montipora hispida</i> (Dana, 1846)	-	-	-		-	-	-	+	+
23.	<i>Montipora digitata</i> (Dana, 1846)	-	-	-	-	+	-	-	-	-
24.	<i>Montipora peltiformis</i> (Bernard, 1897)	-	-	-	-	-	-	+	+	-
25.	<i>Montipora informis</i> (Bernard, 1897)	-	-	-	-	-	-	-	+	-
26.	<i>Montipora aequituberculata</i> (Bernard, 1897)	+	-	-	-	-	-	+	+	+
27.	<i>Montipora mollis</i> Bernard, 1897	+	-	+	-	-	-	-	-	-
	Genus <i>Astreopora</i> de Blainville, 1830									
28.	<i>Astreopora myriophthalma</i> (Lamarck, 1816)	-	-	-	-	-	-	+	-	+
	Family POCILLOPORIDAE Gray, 1842									
	Genus <i>Pocillopora</i> Lamarck, 1816									
29.	<i>Pocillopora damicornis</i> (Linnaeus, 1758)	+	+	+	+	-	+	+	+	+
30.	<i>Pocillopora ligulata</i> (Dana, 1846)	-	-	+	-	-	-	-	-	-
31.	<i>Pocillopora meandrina</i> Dana, 1846	+	-	+	-	-	-	-	-	-
32.	<i>Pocillopora verrucosa</i> (Ellis & Solander, 1786)	+	+	+	+	+	-	+	+	-
33.	<i>Pocillopora ankeli</i> Scheer and Pillai, 1974	-	-	+	-	-	-	-	-	-
34.	<i>Pocillopora eydouxi</i> MED & H, 1860	-	-	+	-	+	-	-	-	-
	Genus <i>Seriatopora</i> Lamarck, 1816									
35.	<i>Seriatopora hystrix</i> (Dana, 1846)	-	-	-	-	+	-	+	+	+
36.	<i>Seriatopora stellata</i> Quelch, 1886	-	-	-	-	+	-	-	-	-
37.	<i>Seriatopora guttatus</i> (Linnaeus, 1767)	+	-	-	-	-	-	-	-	-
	Genus <i>Stylophora</i> Schweigger, 1819									
38.	<i>Stylophora pistillata</i> (Esper, 1797)	+	+	-	+	+	+	+	-	-
39.	<i>Stylophora subseriata</i> (Ehrenberg, 1834)	-	-	-	-	+	-	-	-	-

Table 8. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Family OCULINIDAE Gray, 1847 Genus <i>Galaxea</i> Oken, 1815									
40.	<i>Galaxea fascicularis</i> (Linnaeus, 1767)	+	+	+	+	+	+	+	-	+
41.	<i>Galaxea astreata</i> (Lamarck, 1816)	+	-	+	-	-	-	-	-	-
	Family SIDERASTERIDAE Vaughan & Wells, 1943 Genus <i>Coscinaracea</i> MED & H, 1848									
42.	<i>Psammocora contigua</i> (Esper, 1797)	+	-	-	-	-	-	-	+	-
43.	<i>Psammocora profundacella</i> Gardiner, 1898	-	-	+	-	-	-	-	-	-
	Family AGARICIIDAE Gray, 1847 Genus <i>Pachyseris</i> MED & H, 1849									
44.	<i>Pachyseris gemmae</i> (Nemanzo, 1955)	+	-	-	-	+	-	+	-	-
45.	<i>Pachyseris speciosa</i> (Dana, 1846)	+	-	-	-	-	-	-	+	-
46.	<i>Pachyseris rugosa</i> (Lamarck, 1801)	+	-	+	-	-	-	-	-	+
	Genus <i>Coelosseris</i> Vaughan, 1918									
47.	<i>Coleosseris mayeri</i> Vaughan, 1918	+	-	-	-	+	-	-	-	-
	Genus <i>Pavona</i> Lamarck, 1801									
48.	<i>Pavona danai</i> (Milne Edwards & Haime, 1860)	-	-	-	-	-	-	-	+	-
49.	<i>Pavona varians</i> Verrill, 1864	+	+	-	-	+	-	-	-	-
50.	<i>Pavona explanulata</i> (Lamarck, 1816)	-	-	-	-	+	-	-	-	-
51.	<i>Pavona bipartita</i> Nemanzo, 1980	+	-	-	-	-	-	-	-	-
52.	<i>Pavona diffluens</i> (Lamarck, 1816)	+	-	-	-	-	-	-	-	-
53.	<i>Pavona venosa</i> (Ehrenberg, 1834)	+	+	-	-	+	+	-	-	-
54.	<i>Pavona duerdeni</i> Vaughan, 1907	+	-	-	-	+	-	-	-	-
	Genus <i>Leptosseris</i> MED & H, 1849									
55.	<i>Leptosseris mycetoseroides</i> Wells, 1954	+	-	-	-	+	-	-	-	-
56.	<i>Leptosseris explanulata</i> Yabe and Sugiyama, 1941	+	-	-	-	-	-	-	-	-

Table 8. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
57.	<i>Leptoseris scabra</i> Vaughan, 1907	+	-	-	-	-	-	-	-	-
	Genus <i>Gardineroseris</i> Scheer & Pillai, 1974									
58.	<i>Gardineroseris planulata</i> (Dana, 1846)	+	+	-	-	+	-	-	-	-
	Family FUNGIIDAE Dana Genus <i>Ctenactis</i> Verrill									
59.	<i>Ctenactis echinata</i> (Pallas, 1766)	+	+	+	-	+	+	+	+	-
60.	<i>Ctenactis crassa</i> (Dana, 1846)	+	+	-	-	-	+	-	+	-
	Genus <i>Diaseris</i> MED & H, 1849									
61.	<i>Diaseris distorta</i> (Michelin, 1843)	-		-	-	-	-	+	-	-
	Genus <i>Fungia</i> Lamarck, 1801									
62.	<i>Fungia fungites</i> (Linnaeus, 1758)	-	+	-	-	-	+	+	-	-
63.	<i>Fungia paumotensis</i> (Stutchbury, 1833)	-	+	-	-	+	+	+	+	-
64.	<i>Fungia concinna</i> (Verrill, 1864)	+	-	-	-	+	-	-	-	+
65.	<i>Fungia corona</i> (Doderlein, 1901)	-	-	-	-	+	-	+	-	-
66.	<i>Fungia repanda</i> Dana, 1846	-	-	-	-	+	-	-	-	-
67.	<i>Fungia moluccensis</i> Horst, 1919	-	-	-	-	+	-	-	-	-
68.	<i>Fungia fralinae</i> Nemenzo, 1955	-	-	-	-	+	-	-	-	-
69.	<i>Fungia horrida</i> Dana, 1846	+	-	-	-	-	-	-	-	-
70.	<i>Fungia scutaria</i> (Lamarck, 1801)	+	-	-	-	+	-	-	-	-
71.	<i>Fungia taiwanensis</i> (Hoeksema & Dai, 1991)	-	-	+	-	-	-	-	-	-
72.	<i>Fungia scabra</i> (Doderlein, 1901)	-	-	-	-	+	-	+	-	-
73.	<i>Fungia granolosa</i> (Klunzinger, 1879)	-	-	-	-	+	-	+	-	-
74.	<i>Fungia klunzingeri</i> (Doderlein, 1901)	-	-	-	-	+	-	+	-	+
	Genus <i>Herpolitha</i> Eschscholtz, 1825									
75.	<i>Herpolitha limax</i> (Houttuyn, 1772)	-	-	-	-	-	-	+	-	-
76.	<i>Herpolitha weberi</i> Horst, 1921	-	-	-	-	+	-	-	-	-

Table 8. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Genus <i>Lithophyllon</i> Rehberg, 1892									
77.	<i>Lithophyllon lobata</i> (Horst, 1921)	-	-	-	-	-	-	-	-	+
78.	<i>Lithophyllon undulatum</i> (Rehberg, 1892)	-	-	-	-	-	-	-	-	+
	Genus <i>Polyphyllia</i> Quoy & Gaimard, 1833									
79.	<i>Polyphyllia talpina</i> (Lamarck, 1801)	-	-	-	-	+	-	-	-	-
	Family MERULINIDAE Verrill, 1866 Genus <i>Hydnophora</i> Fischer de Waldheim, 1807									
80.	<i>Hydnophora microconos</i> (Lamarck, 1816)	+	+	+	-	+	-	+	+	-
81.	<i>Hydnophora exesa</i> (Pallas, 1766)	+	-	-	-	-	-	-	-	-
	Genus <i>Merulina</i> Ehrenberg, 1834									
82.	<i>Merulina scabricula</i> (Dana, 1846)	+	-	+	-	-	-	+	-	-
83.	<i>Merulina ampliata</i> (Ellis & Solander, 1786)	+	-	-	-	+	-	+	-	+
	Family MUSSIDAE Ortmann Genus <i>Lobophyllia</i> de Blainville									
84.	<i>Lobophyllia hemprichii</i> (Ehrenberg, 1834)	+	-	-	-	-	-	-	-	-
85.	<i>Lobophyllia pachysepta</i> (Chevalier, 1975)	-	-	-	-	-	-	-	+	-
	Genus <i>Symphyllia</i> MED & H, 1848									
86.	<i>Symphyllia radians</i> (Milne Edwards & Haime, 1849)	+	-	-	-	-	-	-	-	+
87.	<i>Symphyllia hassi</i> (Pillai and Scheer, 1776)	-	-	-	-	+	-	+	-	-
88.	<i>Symphyllia agaricia</i> (Milne Edwards and Haime, 1849)	-	-	-	-	-	-	-	+	+
89.	<i>Symphyllia valenciennesii</i> MED & H, 1849	+	-	-	-	+	-	-	-	-
90.	<i>Symphyllia recta</i> (Dana, 1846)	-	-	-	-	-	-	+	+	+
	Genus <i>Scolymia</i> Haime, 1852									
91.	<i>Scolymia australis</i> (MED & H, 1849)	-	-	-	-	+	-	-	-	-

Table 8. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Genus <i>Acanthastrea</i> MED & H, 1848									
92.	<i>Acanthastrea echinata</i> (Dana, 1846)	+	-	-	-	+	-	-	-	-
93.	<i>Acanthastrea irregularis</i> Veron, 2002	-	-	-	-	+	-	-	-	-
	Family FAVIIDAE Gregory, 1900 Genus <i>Favia</i> Oken, 1815									
94.	<i>Favia pallida</i> (Dana, 1846)	+	+	+	-	+	+	+	-	+
95.	<i>Favia maxima</i> Veron and Pichon, 1977	-	-	-	-	+	-	-	+	+
96.	<i>Favia speciosa</i> Dana, 1846	+	-	-	-	+	-	-	-	-
97.	<i>Favia truncatus</i> Veron, 2002	+	-	+	-	+	-	-	-	-
98.	<i>Favia rotumana</i> (Gardiner, 1899)	+	-	-	-	+	-	-	-	-
99.	<i>Favia lizardensis</i> (Veron and Pichon, 1977)	+	-	-	-	+	-	-	+	-
100.	<i>Favia matthaii</i> (Vaughan, 1918)	+	+	+	+	+	-	+	+	+
101.	<i>Favia stelligera</i> (Dana, 1846)	+	-	-	-	-	-	-	-	-
102.	<i>Favia rotundata</i> (Veron and Pichon, 1977)	+	-	-	-	-	-	-	-	-
	Genus <i>Favites</i> Link, 1807									
103.	<i>Favites pentagona</i> (Esper, 1794)	+	+	-	+	+	+	-	+	-
104.	<i>Favites complanata</i> (Ehrenberg, 1834)	+	+	-	+	-	+	+	-	+
105.	<i>Favites halicora</i> (Ehrenberg, 1834)	+	-	-	+	+	+	+	+	-
106.	<i>Favites vasta</i> (Klunzinger, 1879)	-	-	-	-	+	-	-	-	-
107.	<i>Favites bestae</i> Veron, 2000	-	-	-	-	-	-	-	-	-
108.	<i>Favites paraflexuosa</i> Veron, 2002	+	-	-	-	+	-	-	-	-
109.	<i>Favites russelli</i> (Wells, 1954)	+	+	-	-	-	+	-	-	-
110.	<i>Favites chinensis</i> (Verrill, 1866)	-	-	-	-	+	-	-	-	-
111.	<i>Favites flexuosa</i> (Dana, 1846)	-	-	-	-	-	-	+	-	-
	Genus <i>Barabattoia</i> Yabe and Sugiyama, 1941									
112.	<i>Barabattoia laddi</i> (Wells, 1954)	-	-	-	-	-	-	-	-	+
113.	<i>Barabattoia amicorum</i> (MED & H, 1850)	+	-	-	-	+	-	-	-	-

Table 8. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Genus <i>Leptoria</i> MED & H, 1848									
114.	<i>Leptoria irregularis</i> (Veron, 1990)	+	-	-	-	+	-	+	+	-
115.	<i>Leptoria phrygia</i> (Ellis and Solander, 1786)	+	-	+	-	-	-	-	-	-
	Genus <i>Platygyra</i> Ehrenberg, 1834									
116.	<i>Platygyra pini</i> (Chevalier, 1975)	+	-	-	+	+	+	-	+	+
117.	<i>Platygyra verweyi</i> (Wijsmann-Best, 1976)	+	+	+	-	+	+	-	+	+
118.	<i>Platygyra sinensis</i> (Milne Edwards and Haime, 1849)	-	-	-	-	-	-	-	-	+
119.	<i>Platygyra acuta</i> Veron, 2002	+	-	+	-	-	-	-	-	-
120.	<i>Platygyra ryukyurnsis</i> Yabe and Sugiyama, 1936	+	-	+	+	-	-	-	-	-
121.	<i>Platygyra lamellina</i> (Ehrenberg, 1834)	-	-	-	-	-	-	+	+	+
	Genus <i>Cyphastrea</i> MED & H, 1848									
122.	<i>Cyphastrea chalcidicum</i> (Forskal, 1775)	+	+	-	+	+	+	-	-	-
123.	<i>Cyphastrea agassizi</i> (Vaughan, 1907)	+	-	-	-	-	-	-	-	-
124.	<i>Cyphastrea micropthalma</i> (Lamarck, 1816)	+	+	-	-	+	+	-	-	-
125.	<i>Cyphastrea serailia</i> (Forskal, 1775)	+	-	-	-	-	-	-	-	-
126.	<i>Cyphastrea japonica</i> Yabe and Sugiyama, 1932	+	-	-	+	+	+	-	-	-
	Genus <i>Oulophyllia</i> MED & H, 1848									
127.	<i>Oulophyllia crispa</i> (Lamarck, 1816)	-	-	-	-	-	-	-	+	-
128.	<i>Oulophyllia bennettiae</i> (Veron and Pichon, 1977)	-	-	-	-	+	-	-	-	-
	Genus <i>Diploastrea</i> Matthai, 1914									
129.	<i>Diploastrea heliopora</i> (Lamarck, 1816)	+	-	-	-	+	-	-	+	+
	Genus <i>Echinopora</i> Lamarck, 1816									
130.	<i>Echinopora fruticulosa</i> (Ehrenberg, 1834)	-	-	-	-	-	-	-	+	-
131.	<i>Echinopora pacificus</i> Veron, 1990	+	-	-	-	-	-	-	-	-
132.	<i>Echinopora lamellosa</i> (Esper, 1795)	+	-	-	-	-	-	-	-	-
133.	<i>Echinopora gemmacea</i> Lamarck, 1816	-	-	-	-	+	-	-	-	-

Table 8. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Genus <i>Plesiastrea</i> MED & H, 1848									
134.	<i>Plesiastrea versipora</i> (Lamarck, 1816)	+	-	-	-	+	-	-	-	-
	Genus <i>Goniastrea</i> MED & H, 1848									
135.	<i>Goniastrea australensis</i> (Milne Edwards and Haime, 1857)	-	-	-	-	-	-	-	-	+
136.	<i>Goniastrea retiformis</i> (Lamarck, 1816)	-	+	-	-	-	+	+	+	-
137.	<i>Goniastrea palauensis</i> (Yabe and Sugiyama, 1936)	+	-	-	-	-	-	-	-	-
138.	<i>Goniastrea pectinata</i> (Ehrenberg, 1834)	+	-	-	-	-	-	-	-	-
139.	<i>Goniastrea favulus</i> (Dana, 1846)	+	-	-	-	-	-	-	-	-
140.	<i>Goniastrea peresi</i> (Faure and Pichon, 1978)	+	-	-	-	-	-	-	-	-
141.	<i>Goniastrea minuta</i> Veron, 2002	+	-	-	-	-	-	+	-	+
142.	<i>Goniastrea edwardsi</i> (Chevalier, 1971)	+	+	-	-	-	-	-	+	-
	Genus <i>Leptastrea</i> MED & H, 1848									
143.	<i>Leptastrea transversa</i> Klunzinger, 1879	-	-	-	-	+	+	-	-	-
144.	<i>Leptastrea bottae</i> MED & H, 1849	+	-	-	-	-	-	-	-	-
145.	<i>Leptastrea purpurea</i> (Dana, 1846)	+	+	-	-	+	-	-	-	-
	Genus <i>Montastrea</i> de Blainville, 1830									
146.	<i>Montastrea colemani</i> Veron, 2002	+	-	-	-	+	-	-	-	-
147.	<i>Montastrea salebrosa</i> (Nemanzo, 1959)	+	-	-	-	-	-	-	-	-
148.	<i>Montastrea annuligera</i> (MED & H, 1849)	+	-	-	-	-	-	-	-	-
149.	<i>Montastrea valenciennesi</i> (MED & H, 1848)	+	-	-	-	-	-	-	-	-
	Genus <i>Oulastrea</i> MED & H, 1848									
150.	<i>Oulastrea crispata</i> (Lamarck, 1816)	+	-	-	-	-	-	-	-	-
	Family PECTINIIDAE Vaughan & Wells Genus <i>Pectinia</i> Oken									
151.	<i>Pectinia paeonia</i> (Dana, 1846)	+	-	-	-	-	-	+	-	-
152.	<i>Pectinia alcorni</i> (Saville-Kent, 1871)	+	-	-	-	-	-	-	-	-

Table 8. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Genus <i>Echinophyllia</i> Klunzinger, 1879									
153.	<i>Echinophyllia aspera</i> (Ellis and Solander, 1788)	+	-	-	-	-	-	-	+	-
154.	<i>Echinophyllia orpheensis</i> Veron and Pichon, 1980	+	-	-	-	-	-	-	-	-
	Genus <i>Mycedium</i> Oken, 1815									
155.	<i>Mycedium elephantotus</i> (Pallas, 1766)	+	-	-	-	-	-	-	-	-
	Family PORITIDAE Gray, 1842 Genus <i>Porites</i> Link									
156.	<i>Porites solida</i> (Forsk., 1775)	+	+	-	+	-	+	+	+	+
157.	<i>Porites lobata</i> (Dana, 1846)	+	+	+	+	+	+	-	-	+
158.	<i>Porites lutea</i> MED & H, 1851	+	-	-	-	-	-	-	-	-
159.	<i>Porites australensis</i> Vaughan, 1918	-	-	-	-	+	-	-	-	-
160.	<i>Porites stephensoni</i> Crossland, 1952	+	-	+	-	+	-	+	+	+
161.	<i>Porites cylindrica</i> (Dana, 1846)	+	-	-	-	-	+	-	-	+
162.	<i>Porites annae</i> (Crossland, 1952)	-	-	-	-	-	-	+	-	-
163.	<i>Porites rus</i> (Forsk., 1775)	+	-	-	-	+	+	-	+	+
	Genus <i>Goniopora</i> de Blainville, 1830									
164.	<i>Goniopora tenuidens</i> (Quelch, 1886)	-	-	-	-	-	-	-	-	+
165.	<i>Goniopora lobata</i> MED & H, 1860	-	-	-	-	+	-	-	-	-
166.	<i>Goniopora columna</i> (Dana, 1846)	-	-	-	-	-	-	-	-	+
	Family DENROPHYLLIIDAE Gray Genus <i>Tubastrea</i> Lesson									
167.	<i>Turbinaria stellulata</i> (Lamarck, 1816)	-	-	-	-	+	-	-	-	-
168.	<i>Tubastrea micrantha</i> Ehrenberg, 1834	+	-	-	-	-	-	-	-	-
169.	<i>Tubastrea coccinea</i> Lesson, 1829	+	-	-	-	-	-	-	-	-
170.	<i>Tubastrea faulkneri</i> (Wells, 1982)	+	-	-	-	-	-	-	-	-

Table 8. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Family EUPHYLLIDAE Veron									
	Genus <i>Physogyra</i> Quelch, 1884									
171.	<i>Physogyra lichtensteini</i> (MED & H, 1851)	+	-	-	-	-	-	-	-	-
	Genus <i>Euphyllia</i> Dana, 1846									
172.	<i>Euphyllia glabrescens</i> (Chamisso & Eysenhardt, 1821)	+	-	-	-	+	-	-	-	-
	Total number of species	102	27	24	14	75	25	48	45	39
	Total number of genera	40	16	13	8	36	14	22	22	19
	Total number of families	13	8	9	5	12	7	10	10	9

The diversity of corals was assessed by using various indices. Shannon-Weaner Diversity index showed maximum values at Kopen Heat (0.962) and minimum at Laxmi Nagar (2.839). The Menhinick Diversity index revealed that corals in Gandhi Nagar were more diversified (4.167) and less diversified at Joginder Nagar (1.979) (Fig. 7). Equitability index of scleractinian corals ranged from 0.8933 at Joginder Nagar to 0.9618 at Laxman Beach while Pileou's Evenness index varied from 0.7125 at Joginder Nagar to 0.8754 at Laxmi Nagar. Simpson's Diversity index found maximum at Laxman Beach (0.9865) whereas minimum was at Laxmi Nagar (0.9072) (Fig. 8). Margalef Community Index showed highest value for Laxman Beach (15.3) and the lowest value for Laxmi Nagar (3.323). Fisher Alpha Diversity Index maxima (32.14) observed at Laxman Beach and minima (6.456) at Laxmi Nagar (Fig. 9). Dominance Index showed a maximum value for Laxmi Nagar (0.0928) and minimum for Laxman Beach (0.0135). Whereas, Berger-Parker Diversity Index registered high values for Laxmi Nagar (0.16) and low (0.03261) at Laxman Beach (Fig. 10).

The species Similarity Index of corals was calculated between different stations in Great Nicobar and it indicated that maximum similarity (0.73) found between B' Quarry & Shastry Nagar where as minimum (0.16) between Galathea Mouth & Joginder Nagar (Table 9).

Table 9. Similarity Index of Scleractinian corals at nine sites of Great Nicobar Island

	B' Qaury	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
Laxman Beach	0.35	0.3	0.24	0.48	0.31	0.33	0.28	0.26
B' Qaury		0.35	0.48	0.35	0.73	0.4	0.36	0.27
Joginder Nagar			0.31	0.2	0.24	0.16	0.17	0.22
Laxmi Nagar				0.22	0.56	0.25	0.23	0.26
Gandhi Nagar					0.34	0.35	0.31	0.24
Shastry Nagar						0.32	0.34	0.34
Galathea Mouth							0.45	0.43
Indira Point								0.4

The present study recorded a total of 13 families of scleractinian corals from Great Nicobar Island. A maximum of 57 species was observed under Faviidae family where as the minimum 2 species recorded under Oculinidae, Siderastreidae and Euphyllidae family (Table 10. Great Nicobar Island represented 34.19% scleractinian species of Andaman & Nicobar Islands among the 13 families out of 17 families were already reported from Andaman & Nicobar Islands.

Table 10. Percentage composition of different families of Scleractinian corals

Sl. No.	Families	Species in A & N Islands	Species at Great Nicobar Island	Percentage of species at Great Nicobar Island
1	Acroporidae	160	28	17.50
2	Pocilloporidae	22	11	50.00
3	Oculinidae	5	2	40.00
4	Siderastreidae	15	2	1.33
5	Agariciidae	35	15	42.85
6	Fungiidae	51	21	41.17
7	Merulinidae	9	4	44.44
8	Mussidae	28	10	35.71
9	Faviidae	90	57	63.33
10	Pectinidae	15	5	33.33
11	Poritidae	55	11	20.00
12	Dendrophylliidae	10	4	40.00
13	Euphyllidae	8	2	25.00
	Total	503	172	34.19

The percentage of live coral cover and density have been calculated for all nine study sites of Great Nicobar Island (Table 11 and Fig.11). The numerical density of corals estimated as 12 colonies/10m² at Indira Point to 21 colonies/10m² at Laxman Beach. The percentage of live coral cover varied from 31.12% at Indira Point to 75.12% at Laxman Beach with mean value of 40.71%. During the study period a mass bleaching of corals were also noticed due to sudden increase of surface sea temperature which rose up to 32°C during May 2010 against its normal temperature of 26-28°C. The percentage of coral bleaching was calculated as 40-65%. The rate of post-bleaching recovery was noticed as 76.02 to 94.21%. The data collected on new recruitments of corals 10.56 to 30.25%.

Table 11. Status of scleractinian corals of Great Nicobar Island

Sl. No.	Study areas	Density of colony/10m ²	Mean live coral percentage 2013	New Recruitment percentage 2011-2013
1.	Laxman Beach	21	75.12	30.25
2.	B' Qaury	16	47.73	25.30
3.	Joginder Nagar	13	45.4	10.56
4.	Laxmi Nagar	13	34.8	12.11
5.	Gandhi Nagar	18	49.5	19.54
6.	Shastry Nagar	17	48.32	22.80
7.	Galathea Mouth	15	34.52	15.30
8.	Indira Point	12	31.12	11.50
9.	Kopen Heat	14	34.2	14.52

Soft Corals

A total of 8 species of soft corals under 8 genera and 3 families were identified from nine sites at Great Nicobar Island. Among them, maximum of 7 species were recorded at Indira Point whereas the minimum 2 species found at B' Quarry and Shastry Nagar (Table 12). It is observed that *Sarcophyton* sp. and *Lobophytum* sp. were distributed at all the places of study except Galathea Mouth and Laxmi Nagar respectively (Plate 12).

Indira Point showed highest degree of Shannon-Weaner Diversity index value of 1.809 for soft corals, whereas Shastry Nagar showed the lowest of 0.693. The Menhinick Diversity Index also confirmed that Indira Point was more diversified (1.606) whereas the B' Quarry was less diversified (0.666) (Fig. 12). Equitability index of soft corals was maximum at Shastry Nagar (1) whereas minimum found at B' Quarry (0.764). Pileou's Evenness index was highest at Shastry Nagar (1) whereas lowest at B' Quarry (0.849) while Simpson's Diversity Index were maximum at Indira Point (0.819) and it showed

minimum at B' Quarry (0.345) (Fig. 13). Results of Margalef Community Index ranged from 0.455 at B' Quarry to 2.038 Indira Point whereas Fisher Alpha Diversity Index varied from 0.797 to 4.003 at B' Quarry and Indira Point respectively (Fig. 14). Dominance Indices showed a maximum value for B' Quarry (0.654) and minimum value for Indira Point (0.18). And the Berger-Parker Diversity Indices quantified highest value for B' Quarry (0.777) while the lowest (0.263) at Indira Point (Fig. 15).

Table 12. Soft corals of Great Nicobar Island

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Family: Alcyoniidae									
1	<i>Sinularia</i> sp.	-	-	+	-	+	-	-	+	+
2	<i>Sarcophyton</i> sp.	+	+	+	+	+	+	-	+	+
3	<i>Lobophytum</i> sp.	+	+	+	-	+	+	+	+	+
4	<i>Cladiella</i> sp.	-	-	-	-	+	-	-	+	-
	Family: Nephtheidae									
5	<i>Nephtea</i> sp.	-	-	-	-	-	-	-	-	+
6	<i>Dendronephthya</i> sp.	-	-	-	-	-		+	+	+
7	<i>Capnella</i> sp.	+	-	+	+	-	-	-	+	+
	Family: Isisidae									
8	<i>Isis hippuris</i>	-	-	-	+	+	-	+	+	-
	Total number of species	3	2	4	3	5	2	3	7	6
	Total number of genera	3	2	4	3	5	2	3	7	6
	Total number of families	2	1	2	3	2	1	3	3	2

Maximum similarity index (1.00) of soft corals was observed between B' Quarry & Shastry Nagar and the minimum (0.29) found between Galathea Mouth & Joginder Nagar (Table 13).

A total of 3 families of soft corals were recorded during study period. A maximum of 4 species was observed under family Alcyoniidae where as the minimum of single species recorded under family Isisidae (Table 14). Great Nicobar Island represented 100% soft corals of Andaman & Nicobar Islands among the recorded 3 families.

Table 13. Similarity Indices of soft corals at nine sites of Great Nicobar Island

	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
Laxman Beach	0.8	0.86	0.67	0.50	0.80	0.33	0.60	0.67
B' Qaury		0.67	0.40	0.57	1.00	0.40	0.44	0.50
Joginder Nagar			0.57	0.67	0.67	0.29	0.73	0.80
Laxmi Nagar				0.50	0.40	0.33	0.60	0.44
Gandhi Nagar					0.57	0.50	0.83	0.55
Shastry Nagar						0.40	0.44	0.50
Galathea Mouth							0.6	0.44
Indira Point								0.77

Table 14. Percentage composition of different families of soft coral

Sl. No.	Families	No. of species at A & N Islands	No. of species at Great Nicobar Island	% of species at Great Nicobar Island
1.	Alcyoniidae	4	4	100%
2.	Nephtheidae	3	3	100%
3.	Isisidae	1	1	100%
	Total	8	8	100%

Polyclads

A total of 7 species of polyclads under 2 genera and 1 family were recorded from Great Nicobar Island during the study period. A maximum number of 6 species were reported from B' Quarry whereas the minimum 2 species at Joginder Nagar, Laxmi Nagar and Kopen Heat (Table 15 and Plate 13).

The results on the various diversity indices applied for polyclads are depicted in Figs. 16-19. B' Quarry showed highest degree of diversity with 1.561 and Joginder Nagar showed the lowest 0.636 in Shannon-Weaner Diversity Index. The Menhinick Diversity Index found that B' Quarry (1.732) was more diversified and the least was Shastry Nagar (0.866) (Fig. 16). Equitability Index of polyclads was maximum at Kopen Heat (1) and minimum at B' Quarry (0.871). Pileou's Evenness index was highest at Kopen Heat (1) and lowest at B' Quarry (0.793). Simpson's Diversity Index was maximum at B' Quarry (0.75) whereas it was minimum at Joginder Nagar (0.444) (Fig. 17). Margalef community Index showed highest value for B' Quarry (2.012) while the lowest value for Laxmi Nagar (0.621). Fisher Alpha Diversity Index showed maximum value for Laxman Beach

The study areas of Great Nicobar Island were compared for Polyclad diversity to record the similarities and dissimilarities among the nine sites. Maximum similarity index (0.8) was reported between Indira Point and Shastry Nagar whereas the minimum (0.22) between B' Quarry and Shastry Nagar (Table 16).

Table 16. Similarity Index of Polyclads at nine sites of Great Nicobar Island

	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
Laxman Beach	0.60	0.66	0	0.57	0.28	0.57	0.50	0.33
B' Qaury		0.25	0.50	0.66	0.22	0.66	0.60	0.50
Joginder Nagar			0	0.40	0.40	0	0.66	0
Laxmi Nagar				0.40	0.40	0.40	0.33	0.50
Gandhi Nagar					0.33	0.66	0.28	0.40
Shastry Nagar						0.33	0.80	0
Galathea Mouth							0	0.40
Indira Point								0.33

Crabs

A total of 78 species of crabs under 31 genera and 15 families were reported from Great Nicobar Island during the study period. A maximum of 68 species under 30 genera and 15 families were found at Shastry Nagar whereas the minimum of 27 species under 18 genera and 13 families observed from Laxmi Nagar (Table 17 and Plate 14).

Shannon-Weaner Diversity Index indicated that Shastry Nagar showed highest degree of crab diversity with 4.102 and the lowest of 3.197 at Laxmi Nagar. The Menhinick diversity Index for crabs implies that Shastry Nagar was more diversified (5.552) while the least was Laxmi Nagar (4.117) (Fig. 20). Equitability Index of crabs was maximum at Laxman Beach (0.982) and minimum at Galathea Mouth (0.960). Pileou's evenness index varied between 0.883 and 0.937 at Galathea Mouth and Laxman Beach respectively. Simpson's Diversity Index was maximum at Shastry Nagar (0.981) whereas minimum found at Laxmi Nagar (0.955) (Fig. 21). Margalef community Index ranged from 6.91 at Laxmi Nagar to 13.37 at Shastry Nagar. Fisher Alpha diversity Index showed maximum value for Joginder Nagar (58.94) while the minimum for Laxmi Nagar (31.1) (Fig. 22). Dominance Index showed a maximum value for Laxmi Nagar (0.044) and minimum value for Shastry Nagar (0.018). Berger-Parker diversity Index was highest at Laxmi Nagar (0.069) and lowest (0.033) at Shastry Nagar (Fig. 23).

Table 17. Crabs of Great Nicobar Island

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Phylum: ARTHROPODA									
	Class: CRUSTACEA									
	Order: BRACHYURA									
	Family CALAPPIDAE Dana, 1852									
	Genus <i>Calappa</i> Weber, 1795									
1	<i>Calappa calappa</i> (Linnaeus, 1758)	+	+			+	+	+		
2	<i>Calappa hepatica</i> (Linnaeus, 1758)	+	+				+		+	+
3	<i>Calappa philargius</i> (Linnaeus, 1758)	+	+			+	+	+		
	Family CARPILIIDAE Ortmann, 1893									
	Genus <i>Carpilius</i> Leach in Desmarest, 1823									
4	<i>Carpilius convexus</i> (Forsk., 1775)	+	+	+	+	+	+	+	+	+
5	<i>Carpilius maculatus</i> (Linnaeus, 1758)		+	+	+		+	+		
	Family DOMECHIIDAE Ortmann, 1893									
	Genus <i>Domecia</i> Eydoux & Souleyet, 1842									
6	<i>Domecia glabra</i> Alcock, 1899	+	+		+		+		+	+
7	<i>Domecia hispida</i> Eydoux and Souleyet, 1842		+	+			+	+		+
	Family DROMIIDAE De Haan, 1833									
	Genus <i>Cryptodromia</i> Borradaile, 1903									
8	<i>Cryptodromia tuberculata</i> Stimpson, 1858		+		+	+	+	+	+	
	Genus <i>Dromidiopsis</i> Borradaile, 1900									
9	<i>Dromidiopsis cranioides</i> (De Man, 1888)		+	+		+	+	+		
	Family ERIPHIIDAE MacLeay, 1838									
	Genus <i>Eriphia</i> Latreille, 1817									
10	<i>Eriphia sebana</i> (Shaw and Nodder, 1803)	+	+		+	+	+	+		+
11	<i>Eriphia smithi</i> MacLeay, 1838	+	+	+		+	+	+	+	

Table 17. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Family GRAPSIDAE MacLeay, 1838 Genus <i>Grapsus</i> Lamarck, 1801									
12	<i>Grapsus albolineatus</i> (Lamarck, 1818)		+			+	+	+	+	+
13	<i>Grapsus grapsus</i> (Linnaeus)		+			+	+			+
14	<i>Grapsus longitarsis</i> (Dana, 1851)	+	+			+	+	+	+	
	Genus <i>Geograpsus</i> Stimpson, 1858									
15	<i>Geograpsus crinipes</i> (Latreille 1829)			+	+		+			+
16	<i>Geograpsus grayi</i> (H. Milne Edwards, 1853)	+	+			+	+	+	+	
	Genus <i>Metopograpsus</i> H. Milne Edwards, 1853									
17	<i>Metopograpsus frontalis</i> (Mirs)	+	+		+				+	+
18	<i>Metopograpsus messor</i> (Forskal , 1775)		+	+	+	+	+	+		
	Genus <i>Pachygrapsus</i> Randall, 1840									
19	<i>Pachygrapsus minutus</i> (A.M. Edwards)		+			+	+			+
20	<i>Pachygrapsus planifrons</i> (de man)					+			+	
	Family MAJIDAE Samouelle, 1819									
	Genus <i>Pseudomiccippa</i>									
21	<i>Pseudomiccippa tenuipes</i> A. Milne Edwards, 1865	+	+	+	+		+	+		
	Genus <i>Schizophrys</i> White, 1848									
22	<i>Schizophrys aspera</i> (H. Milne Edwards, 1834)		+			+	+		+	+
	Family MATUTIDAE De Haan, 1833 Genus <i>Ashtoret</i> Galil & Clark, 1994									
23	<i>Ashtoret lunaris</i> (Forskal, 1775)	+	+	+		+	+	+	+	+
	Genus <i>Matuta</i> Weber, 1795									
24	<i>Matuta planipes</i> Fabricius, 1798		+	+	+				+	+
	Family MACROPHTHALMIDAE Dana, 1851 Genus <i>Macrophthalmus</i> Desmarest, 1823									
25	<i>Macrophthalmus convexus</i> (Stimpson)		+	+			+	+		+

Table 17. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
26	<i>Macrophthalmus telescopicus</i> (Owen)		+				+	+		+
27	<i>Macrophthalmus verreauxi</i> (H. Milne Edwards, 1848)	+				+	+			+
28	<i>Macrophthalmus japonicas</i> (de Haan, 1835)	+		+			+	+	+	
	Family OCYPODIDAE Rafinesque, 1815 Genus <i>Uca</i> Leach, 1814									
29	<i>Uca annulipes</i> (Latreille)		+	+	+	+	+	+		+
30	<i>Uca chlorophthalmus</i> (Adams & White, 1848)		+				+	+	+	
31	<i>Uca dussumieri</i> (H. Milne Edwards 1852)	+				+	+	+		
32	<i>Uca hesperia</i> (Crane, J. 1975)					+	+			+
33	<i>Uca lactea</i> (De Haan, 1835)		+	+	+		+	+	+	+
34	<i>Uca marionis</i> excise Mobill			+		+				+
35	<i>Uca tetragonon</i> (Herbst, 1790)	+	+			+	+	+		+
36	<i>Uca vocans</i> (Linnaeus, 1758)		+			+	+	+		
	Family OZIIDAE Dana, 1851 Genus <i>Ozius</i> H. Milne Edwards, 1834									
37	<i>Ozius rugulosus</i> Stimpson, 1858	+	+	+	+		+	+		
38	<i>Ozius tuberculosus</i> H. Milne Edwards, 1834					+	+	+	+	+
	Family PLAGUSIIDAE Dana, 1851 Genus <i>Plagusia</i> Latreille, 1804									
39	<i>Plagusia squamosa</i> (Herbst, 1790)	+	+	+	+	+	+	+		+
	Genus <i>Percnon</i> Gistel, 1848									
40	<i>Percnon planissimum</i> (Herbst, 1804)	+	+				+	+	+	
	Family PORTUNIDAE Rafinesque, 1815 Genus <i>Charybdis</i> De Haan, 1833									
41	<i>Charybdis obtusifrons</i> (Leene)	+	+	+			+			+
42	<i>Charybdis feriata</i> (Linnaeus)	+	+			+	+		+	

Table 17. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
43	<i>Charybdis lucifera</i> (Fabricious)			+		+			+	
44	<i>Chrybdis (Goniohellenus) truncata</i> (Fabricius)		+				+	+		
	Genus <i>Portunus</i> Weber, 1795									
45	<i>Portunus longispinosus</i> (Dana, 1852)		+			+	+			+
46	<i>Portunus sanguinolentus</i> (Herbst)	+	+	+		+	+	+	+	+
47	<i>Portunus pelagicus</i> (Linnaeus)	+	+	+	+	+	+	+	+	+
48	<i>Portunus granulatus</i> (Milne Edwards)			+		+	+			+
	Genus <i>Scylla</i> De Haan, 1833									
49	<i>Scylla serrata</i> (Forsk.)	+	+			+	+	+	+	+
	Genus <i>Thalamita</i> Latreille, 1829									
50	<i>Thalamita integra</i> (Dana)	+	+	+	+		+	+		
51	<i>Thalamita admete</i> (Herbst)		+			+	+	+		+
52	<i>Thalamita chaptali</i> (Audouin & Savigny)	+	+				+			+
53	<i>Thalamita crenata</i> (Latreille)	+	+	+		+	+		+	
54	<i>Thalamita prymna</i> (herbst)		+			+	+	+		+
55	<i>Thalamita stimpsoni</i> A.Milne Edwards, 1861		+				+	+	+	
56	<i>Thalamita quadrilobata</i> (Miers 1884)	+	+		+	+	+	+		+
	Family TRAPEZIIDAE Meirs, 1886									
	Genus <i>Trapezia</i> Latreille, 1828									
57	<i>Trapezia areolata</i> Dana, 1852	+		+	+	+				+
58	<i>Trapezia cymodoce</i> (Herbst, 1801)	+	+		+	+	+		+	
59	<i>Trapezia digitalis</i> Latreille, 1828	+		+	+	+		+		
60	<i>Trapezia ferruginea</i> Latreille, 1828			+			+			+
61	<i>Trapezia formosa</i> Smith, 1869	+	+	+		+	+			
62	<i>Trapezia guttata</i> Ruppell, 1830			+	+	+				+
63	<i>Trapezia intermedia</i> Miers, 1886	+	+		+	+	+	+		
64	<i>Trapezia rufopunctata</i> (Herbst, 1799)				+	+				

Table 17. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Family XANTHIDAE MacLeay, 1838									
	Genus <i>Atergatis</i> De Haan, 1835									
65	<i>Atergatis floridus</i> (Rumph)	+	+			+	+	+		+
	Genus <i>Actaea</i> De Haan, 1833									
66	<i>Actaea cavipes</i> (Dana)	+	+			+	+	+		+
67	<i>Actaea speciosa</i> (Dana)		+		+		+			+
	Genus <i>Epixanthus</i> Heller, 1861									
68	<i>Epixanthus dentatus</i> (white)	+	+				+	+		
69	<i>Epixanthus frontalis</i> (M. Edwards)	+	+			+	+	+	+	
	Genus <i>Etisus</i> H. Milne Edwards, 1834									
70	<i>Etisus denatus</i> (Herbst)	+	+	+		+	+			
71	<i>Etisus laevimanus</i> (Randall)		+	+	+		+	+		+
	Genus <i>Pilodius</i> Dana, 1851									
72	<i>Pilodius areolatus</i> (H. Milne Edwards, 1834)	+	+	+	+	+	+	+	+	+
73	<i>Pilodius pilumnoides</i> (White, 1847)		+			+	+	+		
74	<i>Pilodius pugil</i> Dana, 1852		+	+			+			+
	Genus <i>Platypodia</i> Bell, 1835									
75	<i>Platypodia andamania</i> Deb, 1992		+				+			
76	<i>Platypodia cristata</i> (A. Milne Edwards, 1865)	+				+				
77	<i>Platypodia granulosa</i> (Ruppell)		+			+	+	+		+
	Genus <i>Zosimus</i> Leach, in Desmarest, 1823									
78	<i>Zosimus aeneus</i> (Linnaeus)	+	+	+	+	+	+	+	+	+
	Total number of species	41	62	34	27	52	68	48	29	44
	Total number of genera	26	32	20	18	27	30	27	24	27
	Total number of families	14	15	14	13	13	15	15	15	14

The study areas of Great Nicobar Island were compared for crabs to record the similarities and dissimilarities of species occurrence among the nine sites. Maximum similarity index (0.92) observed between B' Quarry & Shastry Nagar and the minimum (0.37) similarity reported between Indira Point & Laxmi Nagar (Table 18).

Table 18. Similarity Index of Crabs at nine sites of Great Nicobar Island

	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
Laxman Beach	0.68	0.45	0.47	0.64	0.68	0.63	0.54	0.47
B' Quarry		0.52	0.49	0.68	0.92	0.78	0.55	0.66
Joginder Nagar			0.59	0.42	0.55	0.51	0.38	0.54
Laxmi Nagar				0.4	0.44	0.45	0.37	0.48
Gandhi Nagar					0.73	0.66	0.49	0.6
Shastry Nagar						0.81	0.51	0.70
Galathea Mouth							0.49	0.52
Indira Point								0.41

A total of 15 families of crabs were recorded during study period. A maximum of 16 species was observed under family Portunidae where as the minimum 2 species recorded under 7 families (Table 19). Great Nicobar Island represented 54% crab species of Andaman & Nicobar Islands among the recorded 15 families.

Table 19. Percentage composition of different families of Crabs

Sl. No.	Families	No. of species at A & N Islands	No. of species at Great Nicobar Island	% of species at Great Nicobar Island
1	Calappidae	5	3	60
2	Carpilidae	2	2	100
3	Domeciidae	3	2	67
4	Dromiidae	5	2	40
5	Eriphiidae	4	2	50
6	Grapsidae	13	9	69
7	Majidae	8	2	25
8	Matutidae	4	2	50
9	Macrophthalmidae	7	4	57

Table 19. contd.

Sl. No.	Families	No. of species at A & N Islands	No. of species at Great Nicobar Island	% of species at Great Nicobar Island
10	Ocypodidae	12	8	67
11	Oziidae	4	2	50
12	Plagusiidae	5	2	40
13	Portunidae	30	16	53
14	Trapeziidae	10	8	80
15	Xanthidae	32	14	44
	Total	144	78	54

Shrimps

A total of 30 species of shrimps under 13 genera and 9 families were identified from the nine sites at Great Nicobar Island. Among them, maximum of 17 species under 11 genera and 8 families reported at B' Quarry whereas the minimum of 5 species under 4 genera and 4 families recorded at Indira Point (Table 20). There was no definite trend of distribution of shrimps among the different stations could be noted. It was observed that *Plesionika ocellus* recorded only at Laxman Beach out of study areas (Plate 15).

Table 20. Shrimps of Great Nicobar Island

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Phylum: ARTHROPODA Class: CRUSTACEA Order: DECAPODA Family HIPPOLYTIDAE Spence Bate, 1888									
	Genus <i>Hippolysmata</i> Stimpson, 1860a									
1	<i>Hippolysmata prima</i> (Borradaile)	+	+			+	+	+		
2	<i>Hippolysmata vittata</i> Stimpson		+			+	+			
	Genus <i>Hippolyte</i> Leach, 1814									
3	<i>Hippolyte commensalis</i> Kemp			+	+				+	+

Table 20. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
4	<i>Hippolyte ventricosa</i> H.M. Edwards	+	+			+	+	+		
	Genus <i>Thor</i> Kingsley, 1878a									
5	<i>Thor amboinensis</i> (de Haan)	+		+		+		+		+
6	<i>Thor maldivensis</i> Borradaile		+				+			
7	<i>Thor paschalis</i> (Heller)	+	+		+	+		+		
	Family ACANTHEPHYRIDAE Spence Bate, 1888 Genus <i>Acanthephyra</i> A. Milne-Edwards, 1881b									
8	<i>Acanthephyra armata</i> A.M. Edwards			+	+		+			+
9	<i>Acanthephyra curtirostris</i> Wood- Mason		+		+				+	+
10	<i>Acanthephyra eximea</i> S.I.. Smith		+						+	
11	<i>Acanthephyra sanguinea</i> Wood- Mason			+			+	+		
	Family NEMATOCARCINIDAE Smith, 1884 Genus <i>Nematocarcinus</i> A. Milne-Edwards, 1881b									
12	<i>Nematocarcinus undulatipes</i> Bate	+	+			+				
13	<i>Nematocarcinus tenuirostris</i> Bate						+	+	+	
	Family PALAEMONIDAE Rafinesque, 1815 Genus <i>Anchistus</i> Borradaile, 1898									
14	<i>Anchistus inermis</i> (Forsk.)		+	+			+	+		
15	<i>Anchistus demani</i> Kemp					+				+
	Family PANDALIDAE Haworth, 1825 Genus <i>Chlorocurtis</i> Kemp, 1925									
16	<i>Chlorocurtis miser</i> Kemp	+			+			+		
	Genus <i>Plesionika</i> Spence Bate, 1888									
17	<i>Plesionika alcocki</i> (A. R. Y. Anderson)	+		+		+	+			
18	<i>Plesionika bifurca</i> Alcock & Anderdson		+		+					
19	<i>Plesionika ensis</i> (A.M. Edwards)		+	+						+

Table 20. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
20	<i>Plesionika martia</i> (A.M. Edwards)					+	+			
21	<i>Plesionika ocellus</i> (Spence Bate)	+								
	Family PASIPHAEIDAE Dana, 1852									
	Genus <i>Leptochela</i> Stimpson, 1860									
22	<i>Leptochela aculeocaudata</i> Paulson		+				+			
23	<i>Leptochela pugnex</i> de Man	+	+			+				
24	<i>Leptochela robusta</i> Stimpson		+				+		+	
	Genus <i>Pasiphea</i> Savigny, 1816									
25	<i>Pasiphea sivado</i> (Risso)			+	+					
26	<i>Pasiphea unispinosa</i> Wood- Mason		+				+			
	Family PSALIDOPODIDAE Wood-Mason & Alcock, 1892									
	Genus <i>Psalidopus</i> Wood-Mason & Alcock, 1892									
27	<i>Psalidopus huxleyi</i> Wood- Mason	+				+		+		+
28	<i>Psalidopus spiniventris</i> Wood- Mason		+			+	+			
	Family STYLODACTYLIDAE Spence Bate, 1888									
	Genus <i>Stylodactylus</i> A. Milne-Edwards, 1881b									
29	<i>Stylodactylus amarynthi</i> de Man	+		+	+					
	Family STENOPODIDAE Claus, 1872									
	Genus <i>Spongicola</i> De Haan, 1833-1850									
30	<i>Spongicola andamanica</i> Alcock	+	+			+	+	+		
	Total number of species	12	17	9	8	13	15	10	5	7
	Total number of genera	10	11	7	7	9	11	9	4	6
	Total number of families	7	8	6	5	7	8	7	4	5

The diversity of shrimps in Great Nicobar Island was calculated by using different indices. B' Quarry showed highest index with 2.724 whereas Indira Point showed the lowest 1.56 in terms of Shannon-Weaner diversity. The Menhinick Diversity Index observed that B' Quarry area was more diversified (3.005) whereas Indira Point was less diversified (1.768) (Fig. 24). Equitability Index of shrimps were maximum at Laxmi Nagar (0.974) whereas minimum at Galathea Mouth (0.957). Pileou's evenness index was highest at Indira Point (0.951) and lowest at B' Quarry (0.896). Simpson's diversity index was maximum at B' Quarry (0.927) whereas minimum was at Indira Point area (0.781) (Fig. 25). Margalef Community Index showed highest value for B/ Quarry (4.617) area whereas the lowest value for Indira Point (01.924). Fisher Alpha Diversity Index showed maximum value for Laxmi Nagar (18.57) area while the minimum value for Indira Point (5.705) area (Fig. 26). Dominance Index showed a maximum value for Indira Point (0.218) and minimum value for B' Quarry (0.072). Berger-Parker Diversity Index showed highest value for Indira Point and Kopen Heat (0.25) while the lowest (0.111) at Shastry Nagar area (Fig. 27).

The similarity index for shrimps recorded from 9 sites at Great Nicobar was maximum (0.72) between Laxman Beach & Gandhi Nagar area minimum (0.08) between Laxmi Nagar & Shashtry Nagar (Table 21). However no similarity was found between Laxman Beach & Indira Point and Gandhi Nagar & Indira Point.

Table 21. Similarity Index of shrimps at nine sites of Great Nicobar Island

	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
Laxman Beach	0.41	0.22	0.30	0.72	0.32	0.63	0	0.21
B' Quarry		0.15	0.24	0.53	0.63	0.37	0.27	0.16
Joginder Nagar			0.47	0.18	0.33	0.31	0.14	0.50
Laxmi Nagar				0.09	0.08	0.22	0.31	0.40
Gandhi Nagar					0.50	0.43	0	0.30
Shastry Nagar						0.48	0.20	0.09
Galathea Mouth							0.13	0.23
Indira Point								0.33

A total of 9 families of shrimps were recorded during study periods. Of which a maximum of 7 species was observed under family Hippolytidae where as the minimum 1 species recorded under Stylodactylidae and Stenopidae (Table 22). Great Nicobar Island represents 41% of Shrimps reported from entire Andaman & Nicobar Islands among the recorded 9 families.

Table 22. Percentage composition of different families of shrimps

Sl. No.	Families	No. of species at A & N Islands	No. of species at Great Nicobar Island	% of species at Great Nicobar Island
1	Hippolytidae	16	7	44%
2	Acantheephyridae	4	4	100%
3	Nematocarcinidae	2	2	100%
4	Palaemonidae	2	2	100%
5	Pandalidae	30	6	20%
6	Pasiphaeidae	8	5	63%
7	Psalidopodidae	7	2	28%
8	Stylodactylidae	2	1	50%
9	Stenopidae	2	1	50%
	Total	73	30	41%

Lobsters

Four species of lobsters were recorded during the study period from Great Nicobar Island and all belongs to a single genus and family. All the four species were observed from B' Quarry and Shastry Nagar while only 2 species recorded at Joginder Nagar, Laxmi Nagar and Indira Point area (Table 23). *Pannulirus polyphagus* Herbst was distributed at all 9 places of study (Plate 16).

Shannon-Weaner diversity index of lobsters reveal that Shastry Nagar showed highest degree of diversity with 1.369 while Joginder Nagar showed the lowest 0.562. The Menhinick Diversity Index registered that lobster species recorded at Galathea Mouth and Kopen Heat were more diversified (1.134) whereas the Laxmi Nagar and Indira Point was least (0.894) (Fig. 28). Equitability Index of lobsters was maximum at Shastry Nagar (0.987) and minimum at Joginder Nagar (0.811). Pileou's Evenness Index was highest at Shastry Nagar (0.982) whereas lowest at Gandhi Nagar and Kopen Heat (0.866). Simpson's Diversity Index were maximum at B' Quarry area (0.727) whereas minimum was at Joginder Nagar area (0.375) (Fig. 29). Margalef Community Index showed highest value for Shastry Nagar (1.365) area whereas the lowest value for BLaxmi Nagar and Indira Point (0.621) area. Fisher Alpha Diversity Index showed maximum value for Shastry Nagar (2.759) area while the minimum value for Laxmi Nagar and Indira Point (1.235) area (Fig. 30). Dominance Index showed a maximum value for Joginder Nagar (0.625) and minimum value for B' Quarry (0.272). Berger-Parker Diversity Index quantified highest values for Joginder Nagar (0.75) while the lowest (0.333) at Shastry Nagar (Fig. 31).

Table 23. Lobsters of Great Nicobar Island

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Phylum: ARTHROPODA Class: CRUSTACEA Order: DECAPODA Family PALINURIDAE									
	Genus <i>Pannulirus</i>									
1	<i>Pannulirus homarus</i> (Linnaeus)	+	+		+	+	+	+	+	+
2	<i>Pannulirus penicillatus</i> (Olivier)	+	+	+		+	+	+		+
3	<i>Pannulirus vericolor</i> (Latreille)	+	+	+	+	+	+	+	+	+
4	<i>Pannulirus polyphagus</i> Herbst		+				+			
	Total number of species	3	4	2	2	3	4	3	2	3
	Total number of genera	1	1	1	1	1	1	1	1	1
	Total number of families	1	1	1	1	1	1	1	1	1

The study areas of Great Nicobar Island were compared for lobsters to record the similarities and dissimilarities among the nine sites. Maximum similarity index (1.00) found between quite a number of places whereas the minimum (0.50) in between Joginder Nagar & Laxmi Nagar and Joginder Nagar & Indira Point (Table 24).

Table 24. Similarity Indices of Lobsters at nine sites of Great Nicobar Island

	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
Laxman Beach	0.86	0.67	0.80	1.00	0.86	1.00	0.8	1.00
B' Quarry		0.67	0.67	0.86	1.00	1.00	0.67	0.86
Joginder Nagar			0.50	0.57	0.67	0.80	0.50	0.80
Laxmi Nagar				0.80	0.67	0.80	1.00	0.80
Gandhi Nagar					0.86	1.00	0.80	1.00

Table 24. contd.

	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
Shastry Nagar						0.86	0.67	0.86
Galathea Mouth							0.80	1.00
Indira Point								0.80

The lobsters of Great Nicobar Island represented with only one family. All the four species of the said family were also reported from Andaman & Nicobar Islands.

Molluscs

A total number of 139 species of molluscs were reported during the study period. The representatives belong to 63 genera, 45 families, 11 orders and 4 classes. Among the nine sites, B' Quarry showed maximum number of 118 species under 56 genera and 41 families whereas minimum of 36 species belonging to 25 genera and 20 families were observed at Laxmi Nagar (Table 25 and Plate 17-18)

Table 25. Molluscs of Great Nicobar Island

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen heat
	Phylum MOLLUSCA Class POLYPLACOPHORA Order NEOLORICATA Family ISCHNOCHITONIDAE Genus <i>Ischnochiton</i>									
1.	<i>Ischnochiton bouryi</i> Dupuis.	-	+	-	-	-	+	-	+	-
2.	<i>Ischnochiton winckworthi</i> Leloup	-	+	-	-	-	+	-	+	-
	Family CHITONIDAE Genus <i>Chiton</i>									
3.	<i>Chiton granoradiatus</i> Leloup	-	+	-	-	-	+	-	+	-

Table 25. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen heat
	Class GASTROPODA Order ARCHAEOGASTROPODA Family HALIOTIDAE Genus <i>Haliotis</i>									
4.	<i>Haliotis asinina</i> Linnaeus, 1758	-	+	+	-	-	+	-	+	-
5.	<i>Haliotis jacnensis</i> Reeve, 1846	-	+	+	-	-	+	-	+	+
	Family PATELLIDAE Genus <i>Patelloida</i>									
6.	<i>Patelloida saccharina</i> (Linnaeus, 1758)	+	+	+	+	+	+	+	+	+
	Family TROCHIDAE Genus <i>Trochus</i>									
7.	<i>Trochus niloticus</i> Linnaeus, 1767	+	+	+	+	+	+	+	+	+
8.	<i>Trochus (Infundibulum) radiatus</i> (Gmelin, 1791)	+	+	-	-	-	+	-	-	-
9.	<i>Trochus maculatus</i> (Linnaeus, 1758)	+	+	-	-	+	-	-	+	-
10.	<i>Umbonium vestiarium</i> (Linnaeus, 1758)	-	+	-	-	-	+	-	+	-
11.	<i>Trochus ochroleucus</i> Gmelin, 1791	+	+	+	+	+	+	+	+	+
	Genus <i>Monodonta</i>									
12.	<i>Monodonta (Monodonta) labio</i> Linnaeus, 1758	+	+	+	+	+	+	+	+	+
13.	<i>Monodonta australis</i> (Lamarck, 1799)	+	+	+	+	+	+	+	+	+
	Family TURBINIDAE Genus <i>Angaria</i>									
14.	<i>Angaria delphinus</i> (Reeve, 1842)	+	+	-	+	-	+	-	+	-
	Genus <i>Astralium</i>									
15.	<i>Astralium rhodostoma</i> (Lamarck, 1822)	-	+	-	-	-	+	-	-	-

Table 25. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen heat
	Genus <i>Turbo</i>									
16.	<i>Turbo argyrostoma</i> (Linnaeus, 1758)	+	+	+	+	+	+	+	+	-
17.	<i>Turbo bruneus</i> (Roeding, 1798)	+	+	-	+	-	+	+	+	+
18.	<i>Turbo cinerea</i> (Born, 1778)	+	+	+	-	+	+	-	+	-
19.	<i>Turbo (Turbo) petholatus</i> (Linnaeus, 1758)	+	-	-	-	+	-	-	-	+
20.	<i>Turbo crassus</i> Wood, 1828	-	+		-	-	+	-	-	-
	Family NERITIDAE Genus <i>Nerita</i>									
21.	<i>Nerita (Amphinerita) polita polita</i> Linnaeus, 1758	+	+	+	+	+	+	+	+	+
22.	<i>Nerita albicilla</i> Linnaeus, 1758	+	+	+	+	+	+	+	+	+
23.	<i>Nerita maxima</i> Gmelin 1791	-	+	-	-	-	+	-	+	-
24.	<i>Nerita signata</i> Lamarck, 1822	-	+	+	-	+	+	-	+	-
25.	<i>Nerita (Theliostyla) oryzarum</i> (Recluz, 1841)	-	+	-	-	-	-	+	-	-
	Order MESOGASTROPODA Family CERITHIDAE Genus <i>Cerithium</i>									
26.	<i>Cerithium columna</i> Sowerby, 1834	-	+	-	-	-	+	-	-	-
27.	<i>Cerithium nodulosum</i> Bruguière, 1792	-	+	+	-	-	+	-	-	-
	Genus <i>Rhinoclavis</i>									
28.	<i>Rhinoclavis (Rhinoclavis) sinensis</i> (Gmelin, 1791)	+	+	+	+	+	+	+	+	+
29.	<i>Rhinoclavis articulata</i> (Adams & Reeve, 1850)	-	+	-	+	-	+	-	+	+
30.	<i>Rhinoclavis aspera</i> (Linnaeus, 1758)	+	+	-	-	-	+	+	-	+
31.	<i>Rhinoclavis (proclava) kochi</i> (Philippi, 1848)	-	+	-	-	-	-	-	-	-
32.	<i>Rhinoclavis (Rhinoclavis) vertegus</i> (Linnaeus, 1767)	-	+	-	-	-	-	-	-	-

Table 25. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen heat
	Family STROMBIDAE Genus <i>Lambis</i>									
33.	<i>Lambis (Lambis) lambis</i> (Linnaeus, 1758)	+	+	+	-	+	+	+	+	+
34.	<i>Lambis (Millepes) scorpius</i> Linnaeus, 1758	+	+	+	-	-	-	-	+	-
35.	<i>Lambis chiragra chiragra</i> Linnaeus, 1758	-	+	-	-	+	+	-	+	+
	Genus <i>Strombus</i>									
36.	<i>Strombus (Canarium) labiatus</i> (Roeding, 1798)	+	+	+	-	+	+	+	+	+
37.	<i>Strombus (Gibberulus) gibberulus gibberulus</i> Linnaeus, 1758	-	+	-	-	-	+	-	-	-
38.	<i>Strombus canarium</i> Linnaeus 1758	+	+	+	-	+	+	+	+	+
39.	<i>Strombus variabilis</i> Swainson, 1820	-	+	+	-	-	+	-	-	-
	Genus <i>Tridentarius</i>									
40.	<i>Tridentarius dentatus</i> (Linnaeus, 1758)	-	-	-	-	+	-	-	-	-
	Family MODULIDAE Genus <i>Modulus</i>									
41.	<i>Modulus tectum</i> (Gmelin, 1791)	+	+	-	-	-	-	+	+	-
	Family RANELLIDAE Genus <i>Cymatium</i>									
42.	<i>Cymatium (Monoplex) nicobaricum</i> (Roding, 1798)	+	+	+	-	-	+	-	-	-
43.	<i>Cymatium (Guttarium) muricinum</i> Roeding, 1798	-	-	-	-	-	-	-	-	-
	Family BURSIDAE Genus <i>Bursa</i>									
44.	<i>Bursa granularis</i> (Roding, 1798)	+	+	-	+	-	+	+	+	+
	Genus <i>Tutufa</i>									
45.	<i>Tutufa (Tubufella) rubeta</i> (Linnaeus, 1758)	-	+	-	-	-	-	-	-	-

Table 25. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen heat
	Family CYPRAEIDAE Genus <i>Cypraea</i>									
46.	<i>Cypraea (Erosaria) caputserpentis</i> (Linnaeus, 1758)	-	+	-	-	-	+	-	-	-
47.	<i>Cypraea (lyncina) lynx</i> (Linnaeus, 1758)	+	+	+	-	-	+	-	+	-
48.	<i>Cypraea (Monetaria) annulus</i> (Linnaeus, 1758)	-	+	-	-	-	+	-	+	-
49.	<i>Cypraea (Monetaria) moneta</i> (Linnaeus, 1758)	-	+	-	-	-	+	-	+	-
50.	<i>Cypraea arabica</i> Linnaeus, 1758	+	+	+	-	+	+	+	+	+
51.	<i>Cypraea asellus</i> Linnaeus, 1758	-	+	-	-	-	+	-	-	-
52.	<i>Cypraea carneola</i> Linnaeus, 1758	+	+	-	-	+	+	-	+	+
53.	<i>Cypraea erronea</i> Linnaeus, 1758	+	+	-	-	-	+	+	+	+
54.	<i>Cypraea isabella</i> Linnaeus, 1758	-	+	-	-	-	+	-	-	-
55.	<i>Cypraea talpa</i> Linnaeus, 1758	-	+	-	+	-	+	-	+	+
56.	<i>Cypraea (Erronea) caurica</i> (Linnaeus, 1758)	-	+	-	-	-	+	-	-	-
57.	<i>Cypraea (Lyncina) vitellus</i> (Linnaeus, 1758)	-	-	-	-	-	+	-	-	-
58.	<i>Cypraea (Cypraea) tigris</i> (Linnaeus, 1758)	-	+	-	-	+		-	-	-
59.	<i>Cypraea mauritiana regina</i> (Linnaeus, 1758)	-	-	-	+	-	-	-	+	-
60.	<i>Cypraea (Leparocypraea) mappa</i> (Linnaeus, 1758)	-	+	-	-	-	-	-	-	-
	Family NATICIDAE Genus <i>Natica</i>									
61.	<i>Natica vitellus</i> (Linnaeus, 1758)	+	-	+	-	-	-	-	+	-
62.	<i>Natica gualteriana</i> (Recluz, 1844)	+	-	+	-	+	+	-	+	+
63.	<i>Polinices (Mammilla) melanostoma</i> (Gmelin, 1791)	-	+	-	-	-	-	+	-	-

Table 25. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen heat
	Family TONNIDAE Genus <i>Tonna</i>									
64.	<i>Tonna perdux</i> (Linnaeus, 1758)	-	+	-	-	-	-	-	-	-
	Family CASSIDAE Genus <i>Casmaria</i>									
65.	<i>Casmaria erinaceus erinaceus</i> (Linnaeus, 1758)	-	+	-	-	-	-	-	-	-
	Order NEOGASTROPODA Family MURICIDAE Genus <i>Chichoreus</i>									
66.	<i>Chichoreus brunneus</i> Link, 1805	+	+	+	-	-	+	-	+	-
67.	<i>Chicoreus palmarosae</i> (Lamarck, 1822)	-	-	-	-	+	-	-	-	-
	Genus <i>Drupa</i>									
68.	<i>Drupa morum</i> (Röding, 1798)	+	+	+	-	+	-	+	-	+
69.	<i>Drupa ricinus</i> (Linnaeus, 1758)	+	+	-	+	-	-	+	-	+
	Genus <i>Thais</i>									
70.	<i>Thais buccinea</i> (Deshayes, 1844)	+	+	+	+	-	+	-	+	-
71.	<i>Thais bufo</i> (Lamarck, 1822)	-	+	-	-	-	-	-	-	-
72.	<i>Thais echinata</i> (Blainville, 1832)	-	+	-	-	+	-	-	-	-
	Family NASSARIDAE Genus <i>Nassarius</i>									
73.	<i>Nassarius lurida</i> (Gould, 1849)	-	+	-	-	+	+	+	+	-
74.	<i>Nassarius distortus</i> (A Adams, 1852)	+	-	-	-	-	-	+	-	+
	Family FASCIOLARIIDAE Genus <i>Pleuroloca</i>									
75.	<i>Pleuroloca filamentosa</i> (Roeding, 1798)	-	+	-	-	+	+	-	+	+

Table 25. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen heat
	Genus <i>Latirus</i>									
76.	<i>Latirus gibbulus</i> (Gmelin, 1791)	-	+	-	-	-	+	-	-	-
77.	<i>Latirus polygonus</i> (Gmelin, 1791)	-	+	-	-	-	-	-	-	-
	Genus <i>Leucozonia</i>									
78.	<i>Leucozonia (Laterolagena) smaragdulus</i> (Linnaeus, 1758)	-	+	-	+	-	+	-	+	+
	Family MITRIDAE Genus <i>Mitra</i>									
79.	<i>Mitra (Strigatella) litterata</i> (Lamarck, 1811)	-	+	-	-	-	+	-	+	-
80.	<i>Mitra ambigua</i> Swainson, 1829	-	+	-	-	-	-	-	-	-
81.	<i>Mitra (Mitra) mitra</i> (Linnaeus, 1758)	-	+	-	-	-	-	-	-	-
82.	<i>Mitra (Strigatella) paupercula</i> (Linnaeus, 1758)	-	+	-	-	-	+	-	-	-
	Genus <i>Pterygia</i>									
83.	<i>Pterygia dactylus</i> (Linnaeus, 1758)	-	-	-	-	-	+	-	-	-
	Family BUCCINIDAE Genus <i>Cantharus</i>									
84.	<i>Cantharus undosus</i> Linnaeus, 1758	+	+	-	+	-	+	-	+	+
	Family OLIVIDAE Genus <i>Oliva</i>									
85.	<i>Oliva miniacea</i> (Roeding, 1798)	+	+	+	+	+	+	+	+	-
	Family VASIDAE Genus <i>Vasum</i>									
86.	<i>Vasum turbinellus</i> Linnaeus, 1758	-	+	-	+	-	+	-	-	+
	Family CONIDAE Genus <i>Conus</i>									
87.	<i>Conus canonicus</i> Hwass in Bruguiere, 1792	-	+	-	-	-	-	-	-	-
88.	<i>Conus capitaneus</i> Linnaeus, 1758	-	+		-	-	+	-	-	-
89.	<i>Conus chaldaeus</i> (Roding, 1798)	+	+	+		+	+		+	+

Table 25. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen heat
90.	<i>Conus ebraeus</i> Linnaeus, 1758	+	+	+	+	+	+	+	+	+
91.	<i>Conus eburneus</i> Hwass in Bruguiere, 1792	+	+	+	+	+	+	+		
92.	<i>Conus figulinus</i> Linnaeus, 1758		+							
93.	<i>Conus straitus</i> Hwass in Bruguiere, 1792	-	+	-	-	+	+	+	-	+
94.	<i>Conus textile</i> (Linnaeus 1758)		+	-	-	-	-	-	-	-
95.	<i>Conus zonatus</i> Hwass, 1792	+	+		+		+	+	+	+
96.	<i>Conus coronatus</i> (Gmelin, 1791)	-	+	-	-	-	+	-	-	-
97.	<i>Conus episcopus</i> (Hwass in Bruguiere, 1792)	-	+	-	-	-	-	-	-	-
98.	<i>Conus marmoreus</i> (Linnaeus, 1758)	-	-	-	-	-	+	-	-	-
99.	<i>Conus nussatella</i> (Linnaeus, 1758)	-	-	-	-	+	+	-	-	-
	Family TEREBRIDAE Genus <i>Terebra</i>									
100.	<i>Terebra maculata</i> (Linnaeus, 1758)	-	+	-	-	-	-	-	-	-
101.	<i>Terebra dimidiata</i> (Linnaeus, 1758)	-	-	-	-	-	+	-	-	-
	Order PULMONATA Family ELLOBIIDAE Genus <i>Pythia</i>									
102.	<i>Pythia plicata</i> Gray, 1825	+	+	+	+	+	+	+	+	+
	Family COLUMBELLIDAE Genus <i>Pyrene</i>									
103.	<i>Pyrene scripta</i> (Lamarck, 1822)	+	+	-	+	+	+	-	-	-
	Order ARCHITECTONOIDEA Family ARCHITECTONICIDAE Genus <i>Heliacus</i>									
104.	<i>Heliacus (Heliacus) areola</i> (Gmelin, 1791)	-	+	-	-	-	+	-	-	+
	Order CEPHALASPIDEA Family BULLIDAE Genus <i>Bulla</i>									
105.	<i>Bulla ampulla</i> Linnaeus, 1758	+	-	+	-	+	-	+	-	+

Table 25. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen heat
	Class CEPHALOPODA Order NAUTILIDA Family NAUTILIDAE Genus <i>Nautilus</i>									
106.	<i>Nautilus pompilius</i> Linnaeus, 1758	+	+	-	-	-	+	+	+	+
	Class BIVALVIA Order ARCOIDA Family ARCIDAE Genus <i>Barbatia</i>									
107.	<i>Barbatia amygdalumtostum</i> (Roding, 1798)	+	+	+	+	+	+	+	+	+
108.	<i>Barbatia (Barbatia) tenella</i> (Reeve)	-	+	-	+	-	+	-	+	+
109.	<i>Barbatia (Barbatia) cancellata</i> Preston	-	+	+		-	+	+	+	+
	Order MYTILOIDA Family PTERIIDAE Genus <i>Pinctada</i>									
110.	<i>Pinctada margaritifera</i> (Linnaeus)	-	+	-	-	-	+	-	+	-
	Family MYTILIDAE Genus <i>Perna</i>									
111.	<i>Perna viridis</i> (Linnaeus)	-	+	-	-	-	-	-	+	-
	Family PINNIDAE Genus <i>Atrina</i>									
112.	<i>Atrina (Atrina) vexillum</i> (Born, 1778)	-	+	-	-	-	-	-	-	-
	Order VENEROIDA Family TELLINIDAE Genus <i>Tellina</i>									
113.	<i>Tellina gargadia</i> (Linnaeus, 1758)	+	+	+	+	+	-	-	-	+

Table 25. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen heat
114.	<i>Tellina (Scutarcopagia) scobinata</i> Linnaeus, 1758	+	+	-	+	-	+	-	+	-
115.	<i>Tellina inflata</i> Gmelin, 1791	-	+	-	+	-		-		-
116.	<i>Tellina palatum</i> Iredale, 1929	-	+	-	-	+	+	-	+	+
117.	<i>Tellina (Arcopegia) carnicolor</i> Hanley	-	+	-	-	-	+	+	-	+
	Family CARDITIDAE Genus <i>Cardita</i>									
118.	<i>Cardita variegata</i> Hwass, 1792	-	+	-	+	+	+	-	+	-
	Family LIMIDAE Genus <i>Limaria</i>									
119.	<i>Limaria basilanica</i> (Adams & Reeve, 1850)	-	+	-	-	-	+	-	-	-
120.	<i>Limaria fragilis</i> (Gmelin, 1791)	-	+	-	-	-	+	-	-	-
	Family CULTELLIDAE Genus <i>Siliqua</i>									
121.	<i>Siliqua radiata</i> (Linnaeus, 1758)	+	-	-	-	+	-	+	-	+
	Family TRIDACNIDAE Genus <i>Hippopus</i>									
122.	<i>Hippopus hippopus</i> Linnaeus, 1758	-	-	-	+	-	-	+	-	-
	Genus <i>Tridacna</i>									
123.	<i>Tridacna squamosa</i> Lamarck, 1819	+	+	+	-	-	+	-	+	+
124.	<i>Tridacna crocea</i> Lamarck, 1819	+	+	-	+	+	+	+	+	+
125.	<i>Tridacna maxima</i> Roeding	-	+	-	-	-	+	-	-	-
	Family CARDIIDAE Genus <i>Trachycardium</i>									
126.	<i>Trachycardium elongatum</i> Bruguiere, 1789	+	+	-	-	-	+	-	-	-

Table 25. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen heat
127.	<i>Trachycardium flavum</i> (Linnaeus, 1758)	-	-	+	-	-	-	-	-	+
	Genus <i>Fulvia</i>									
128.	<i>Fulvia australis</i> Sowerby, 1841	-	+	-	-	+	-	-	+	-
	Family PSAMMOBIIDAE									
	Genus <i>Gari</i>									
129.	<i>Gari elongata</i> Lamarck, 1818	+	+	-	-	+	-	-	+	-
130.	<i>Gari maculosa</i> Lamarck, 1832	+	-	+	-	-	+	-	+	-
	Genus <i>Asaphis</i>									
131.	<i>Asaphis violescentes</i> Forskal, 1838	+	+	+	-	+	+	+	+	+
	Family VENERIDAE									
	Genus <i>Tapes</i>									
132.	<i>Tapes variegatus</i> Sowerby, 1852	-	+	-	-	-	+	-	-	-
	Genus <i>Ruditapes</i>									
133.	<i>Ruditapes bruguieri</i> (Hanley, 1845)	-	-	-	+	-	-	-	-	+
	Genus <i>Antigona</i>									
134.	<i>Antigona puerpera</i> Linnaeus, 1932	-	+	-	+	-	+	-	+	-
	Family DONACIDAE									
	Genus <i>Donax</i>									
135.	<i>Donax cuneatus</i> Linnaeus, 1758	+	-	-	-	-	-	+	-	-
	Family CHAMIDAE Lamarck, 1809									
	Genus <i>Chama</i>									
136.	<i>Chama brassica</i> Reeve	-	+	+	-	+	+	+	+	+

Table 25. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastri Nagar	Galathea Mouth	Indira Point	Kopen heat
	Genus <i>Corculum</i>									
137.	<i>Corculum cardissa</i> (Linnaeus)	-	-	-	-	-	-	+	-	+
	Family MACTRIDAE Genus <i>Mactra</i>									
138.	<i>Mactra hepatica</i> Deshayes	-	+	-	-	-	-	+	-	+
139.	<i>Mactra maculata</i> Gmelin	-	+	-	-	-	-	-	+	+
	Total number of species	55	118	41	36	45	93	43	69	54
	Total number of genera	27	56	27	25	30	48	29	40	33
	Total number of families	28	41	22	20	25	36	26	35	30

The nine study areas showed variation in diversity, dominance, evenness, community and equitability indices. Shannon-Weaner Diversity Index reveals that B' Quarry showed highest degree of diversity with 4.251 whereas Laxmi Nagar showed the lowest 3.256. The result of Menhinick Diversity index found that molluscs of Gandhi Nagar were more diversified (4.546) whereas the less diversity (3.387) observed at Laxmi Nagar (Fig.32). Equitability Index of molluscs was maximum at Gandhi Nagar (0.940) and minimum at Shastri Nagar (0.881). Pileou's Evenness Index was highest at Gandhi Nagar (0.797) and lowest at Shastri Nagar (0.585). Simpson's Diversity Index was maximum at B' Quarry (0.978) and it was minimum at Laxmi Nagar (0.949) (Fig.33). Margalef Community Index showed highest value for B' Quarry (16.59) area whereas the lowest value for Laxmi Nagar (7.404) area. Fisher Alpha Diversity Index showed maximum value for B' Quarry (33.24) while the minimum value for Laxmi Nagar (18.24) (Fig. 34). Dominance Index registered a maximum value for Laxmi Nagar (0.05036) and minimum value for B' Quarry (0.021). Berger-Parker Diversity Index quantified highest value for Laxmi Nagar (0.106) while the lowest (0.066) at B' Quarry (Fig. 35).

The species similarity index of molluscs at different study areas at Great Nicobar Island was calculated and the results depicted in Table 26. Maximum similarity index (0.79) found between B' Quarry & Shastri Nagar whereas the minimum (0.41) between Laxmi Nagar & Joginder Nagar.

Table 26. Similarity Index of Molluscs at nine sites of Great Nicobar Island

	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
Laxman Beach	0.54	0.68	0.52	0.62	0.56	0.65	0.66	0.64
B' Quarry		0.44	0.42	0.46	0.79	0.45	0.69	0.53
Joginder Nagar			0.41	0.62	0.52	0.57	0.58	0.75
Laxmi Nagar				0.44	0.46	0.5	0.53	0.53
Gandhi Nagar					0.47	0.59	0.57	0.6
Shastry Nagar						0.44	0.71	0.57
Galathea Mouth							0.5	0.7
Indira Point								0.61

A total of 11 orders of molluscs were recorded during study period from Great Nicobar Island. A maximum of 40 species was observed under the order Mesogastropoda whereas a single species recorded under orders Architectonidea, Cephalaspidea and Nautilida (Table 27). Great Nicobar Island represented a total of 11.85% molluscs of Andaman & Nicobar Islands among the 11 orders out of 20 orders reported from entire Andaman & Nicobar Islands.

Table 27. Percentage composition of different orders of Molluscs

Sl. No.	Orders	No. of species at A & N Islands	No. of species at Great Nicobar Island	% of species at Great Nicobar Island
1.	Neoloricata	12	3	25.00%
2.	Archaeogastropoda	116	22	18.97%
3.	Mesogastropoda	273	40	14.65%
4.	Neogastropoda	421	36	8.55%
5.	Architectonidea	19	1	5.26%
6.	Pulmonata	14	2	14.29%
7.	Cephalaspidea	32	1	3.13%
8.	Nautilida	1	1	100.00%

Sl. No.	Orders	No. of species at A & N Islands	No. of species at Great Nicobar Island	% of species at Great Nicobar Island
9.	Arcoida	21	3	14.29%
10.	Mytiloida	87	3	3.45%
11.	Veneroida	177	27	15.25%
	Total	1173	139	11.85%

The density of the molluscs was recorded for gastropods and bivalves separately. The maximum gastropod density was 40 ind./10 sq.m. at B' Quarry area while the minimum 15 ind./10 sq. m was observed at Indira Point area. The maximum bivalves density was 21 ind./10 sq.m. at B' Quarry area while the minimum 6 ind./10 sq. m was seen at Indira Point (Fig. 36)

Opisthobranchs

A total of 25 species of Opisthobranchs under 17 genera and 12 families were reported from Great Nicobar Island during the study period. A maximum of 12 species under 8 genera and 5 families were distributed from Gandhi Nagar whereas the minimum 1 species was recorded from Laxmi Nagar and Galathea Mouth respectively (Table 28 and Plate 19-21).

Variations were observed at all the study sites in diversity, dominance, evenness, community and equitability indices of Opisthobranchs. As single species of opisthobranch was recorded at Laxmi Nagar and Galathea Mouth, these two study areas are excluded to calculate indices. Shannon-Weaner Diversity Index reveals that Gandhi Nagar showed highest degree of diversity with 2.399 whereas Shastry Nagar showed the lowest 1.479. The Menhinick Diversity index reported as high in Gandhi Nagar (2.089) and low at Shastry Nagar (1.387) (Fig. 37). Equitability index of Opisthobranchs was maximum at Kopen Heat (0.9675) and minimum observed at Shastry Nagar (0.919). Pileou's Evenness index was highest at Kopen Heat (0.949) whereas lowest at Indira Point (0.8472). Simpson's Diversity index maxima reported at Gandhi Nagar (0.9036) whereas minima at Joginder Nagar (0.7188) (Fig. 38). Margalef Community Index showed highest value for Gandhi Nagar (3.146) whereas the lowest value at Joginder Nagar (1.443). Fisher Alpha Diversity Index ranged from 6.784 at Gandhi Nagar to 2.975 at Shastry Nagar (Fig. 39). The value of Dominance Index varied from Joginder Nagar (0.2813) to Gandhi Nagar (0.09642). Berger-Parker Diversity Index showed higher values for Shastry Nagar (0.3846) and lower (0.1212) at Gandhi Nagar (Fig. 40).

Table 28. Opisthobranchs of Great Nicobar Island

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Gandhi Nagar	Laxmi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Phylum MOLLUSCA Class GASTROPODA Sub Class OPISTHOBRANCHIA Order CEPHALASPEDIA Fischer, 1833 Family AGLAJIDAE Pilsbry, 1895									
	Genus <i>Philinopsis</i>									
1	<i>Philinopsis gardineri</i> (Eliot, 1903)	+	-	+	-	-	-	-	-	+
	Family BULLIDAE Gray, 1827 Genus <i>Bulla</i>									-
2	<i>Bulla ampulla</i> Linnaeus, 1758	-	-	-	-	-	-	-	+	-
	Family HAMINOEIDAE Pilsbry, 1895 Genus <i>Atys</i>									-
3	<i>Atys naucum</i> (Linnaeus, 1758)	-	-	-	-	-	+	-	+	-
	Genus <i>Phanerophthalmus</i>									-
4	<i>Phanerophthalmus smaragdinus</i> (Ruppel and Leuckart, 1828)	-	+	-	-	-	-	-	-	-
	Family ACTEONIDAE d'Orbigny, 1843 Genus <i>Pupa</i>									
5	<i>Pupa solidula</i> (Linnaeus, 1758)	-	-	+	-	-	-	-	+	-
	Order NUDIBRANCHIA Blainville, 1814 Family DORIDIDAE Rafinesque, 1815 Genus <i>Hoplodoris</i>									
6	<i>Hoplodoris estrelyado</i> Gosliner & Behrens, 1998	+	-	-	+	-	-	-	-	-
	Genus <i>Jorunna</i>									
7	<i>Jorunna funebris</i> (Kelaart, 1858)	-	+	-	-	-	+	-	-	+

Table 28. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Gandhi Nagar	Laxmi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Family CHROMODORIDIDAE Bergh, 1891 Genus <i>Chromodoris</i>									
8	<i>Chromodoris alius</i> Rudman, 1987	-	-	-	+	-	-	-	-	-
9	<i>Chromodoris fidelis</i> (Kelaart, 1858)	+	-	+	+	-	-	-	+	-
	Genus <i>Glossodoris</i>									
10	<i>Glossodoris atromarginata</i> (Cuvier, 1804)	-	-	-	+	-	-	-	-	-
	Genus <i>Noumea</i>									
11	<i>Noumea simplex</i> (Pease, 1871)	-	-	-	+	-	-	-	-	-
	Family DENDRODORIDIDAE O' Donoghue, 1924 Genus <i>Dendrodoris</i>									
12	<i>Dendrodoris nigra</i> (Stimpson, 1855)	-	+	-	-	-	-	-	-	+
13	<i>Dendrodoris fumata</i> (Ruppell and Leuckart, 1831)	-	+	-	-	-	-	-	-	-
	Family PHYLLIDIIDAE Rafinesque, 1815 Genus <i>Phyllidia</i>									
14	<i>Phyllidia marindica</i> (Yonow & Hayward, 1991)	-	-	-	+	-	-	-	-	-
15	<i>Phyllidia coelestis</i> Bergh, 1905	-	-	-	+	-	-	-	-	+
16	<i>Phyllidia ocellata</i> Cuvier, 1804	+	-	-	+	-	-	-	-	
17	<i>Phyllidia varicosa</i> Lamarck, 1801	-	-	-	+	-	-	-	-	+
	Genus <i>Phyllidiella</i>									
18	<i>Phyllidiella zeylanica</i> (Kelaart, 1859)	+	+	-	+	-	-	-	+	-
19	<i>Phyllidiella pustulosa</i> (Cuvier, 1804)	+	-	-	-	+	-	-	-	-
	Family FACELINIDAE Bergh, 1889 Genus <i>Herviella</i>									
20	<i>Herviella mietta</i> Marcus and Burch, 1965	-	+	-	-	-	-	+	-	-

Table 28. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Gandhi Nagar	Laxmi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Family DISCODORIDIDAE Bergh, 1889 Genus <i>Peltodoris</i>									
21	<i>Peltodoris murrea</i> (Abraham, 1877)	-	+	-	-	-	-	-	-	-
	Order SACOGLOSSA (von Ihering, 1876) Family PLAKOBRANCHIDAE Gray, 1840 Genus <i>Plakobranchus</i>									
22	<i>Plakobranchus ocellatus</i> Van Hasselt, 1824	-	+	+	+	-	+	-	+	-
	Family ELYSIIDAE Forbes and Hanley, 1851 Genus <i>Elysia</i>									
23	<i>Elysia</i> sp (New)	-	-	-	+	-	-	-	-	-
24	<i>Elysia asbecki</i> Wagele, Stemmer, Burghardt and Handeler, 2010	-	-	-	-	-	+	-	-	-
25	<i>Elysia furvacauda</i> Burn, 1958	-	-	-	-	-	+	-	-	-
	Total no. of species	6	8	4	12	1	5	1	6	5
	Total no. of genera	6	6	4	8	1	4	1	6	4
	Total no. of families	5	6	4	5	1	4	1	6	4

The species similarity index for Opisthobranchs observed at different study sites Great Nicobar registered maximum similarity (0.75) between Laxman Beach & Gandhi Nagar whereas minimum (0.10) between Gandhi Nagar & B' Quarry (Table 29). No similarity in Opisthobranchs was observed between different places of study.

Table 29. Similarity Index of Opisthobranchs at nine sites of Great Nicobar Island

	B' Quarry	Joginder Nagar	Gandhi Nagar	Laxmi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
Laxman Beach	0.14	0.40	0.75	0.28	0	0	0.33	0.18
B' Quarry		0.16	0.10	0	0.30	0.22	0.28	0.30
Joginder Nagar			0.25	0	0.22	0	0.60	0.22
Gandhi Nagar				0	0.11	0	0.33	0.23

Table 29. *contd.*

	B' Quarry	Joginder Nagar	Gandhi Nagar	Laxmi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
Laxmii Nagar					0	0	0	0
Shastry Nagar						0	0.36	0.20
Galathea Mouth							0	0
Indira Point								0

A total of 12 families of Opisthobranchs were recorded from Great Nicobar Island during study period. A maximum of 6 species was observed under the family Phyllidiidae where as the minimum 1 species represented by 7 families (Table 30). Great Nicobar Island harbours a total of 43.86% Opisthobranchs reported from Andaman & Nicobar Islands among the 12 families. Of which two families Facelenididae and Discodorididae were exclusively recorded from Great Nicobar Island.

Table 30. Species percentage of Opisthobranchs according to the families

Sl. No.	Families	No. of species at A & N Islands	No. of species at Great Nicobar Island	% of species at Great Nicobar Island
1	Aglajidae	7	1	14.28
2	Haminoeidae	4	1	25.00
3	Elysidae	8	4	50.00
4	Plakobranchidae	1	1	100.00
5	Phyllidiidae	15	6	40.00
6	Dorididae	6	2	33.33
7	Chromodorididae	8	4	50.00
8	Dendrodorididae	3	2	66.66
9	Facelenididae	0	1	-
10	Discodorididae	0	1	-
11	Bullidae	3	1	33.33
12	Acetonididae	2	1	50.00
		57	25	43.86

Echinoderms

A total of 48 species of echinoderms under 35 genera and 19 families were recorded from Great Nicobar Island during the study period. A maximum number of 37 species were observed at Laxman Beach and Indira Point whereas the minimum was of 21 species at

B' Quarry (Table 31). Among the species *Actinopyga mauritiana* and *Holothuria atra* were dominant and found all the places of study. It is also state that all the holothurians are protected under Schedule-I category of Wildlilfe (Protection) Act, 1972. It is noteworthy to state that feather star *Ophiarthrum pictum* was found only at Laxmi Nagar during the study period (Plate 22-24).

Table 31. Echinoderms of Great Nicobar Island

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Phylum: ECHINODERMATA Class: CRINOIDEA Order: COMATULIDA Family: COMASTERIDAE Genus: <i>Comanthus</i>									
1.	<i>Comanthus parvicirrus</i> (Muller, 1841)	+	-	-	+	+	-	-	+	-
	Genus: <i>Comanthina</i>									
2.	<i>Comanthina schlegeli</i> (P.H.Carpenter, 1881)	+	-	-	+	-	-	+	-	+
	Genus: <i>Capillaster</i>									
3.	<i>Capillaster multiradiatus</i> (Linneaus, 1758)	-	+	-	+	+	+	-	+	+
	Genus: <i>Comatula</i>									
4.	<i>Comatula pectinata</i> (Linneaus, 1758)	+	-	+	-	+	+	-	+	-
	Genus: <i>Comaster</i>									
5.	<i>Comaster multibrachiatu</i> s (P.H. Carpanter, 1888)	+	+	-	-	+	+	+	+	+
6.	<i>Comaster multifidus</i> (Muller, 1841)	+	+	+	+	-	+	-	+	-
	Family: HIMEROMETRIDAE Genus: <i>Himerometra</i>									
7.	<i>Himerometra robustipinna</i> (P.H. Carpenter, 1912)	+	-	-	+	-	+	-	+	-
	Genus: <i>Heterometra</i>									
8.	<i>Heterometra crenulata</i> (P.H. Carpenter, 1882)	-	+	-	-	+	-	-	+	-

Table 31. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Genus: <i>Oxycomanthus</i>									
9.	<i>Oxycomanthus bennetti</i> (Muller, 1841)	-	-	+	-	-	-	+	-	-
	Family: MARIAMETRIDAE Genus: <i>Lamprometra</i>									
10.	<i>Lamprometra palmata</i> (J. Muller, 1841)	+	-	-	+	+	-	+	+	+
	Class: ASTEROIDEA Order: VALVATIDA Family: OPHIDIASTERIDAE Genus: <i>Linckia</i>									
11.	<i>Linckia guildingi</i> (Gray, 1840)	+	+	-	+	+	-	+	-	+
12.	<i>Linckia laevigata</i> (Linneaus, 1758)	+	-	+	+		+	-	+	-
	Genus: <i>Asteropsis</i>									
13.	<i>Asteropsis carinifera</i> (Lamarck, 1816)	-	-	+	+	+	-	-	+	-
	Genus: <i>Fromia</i>									
14.	<i>Fromia indica</i> (Perrier, 1867)	+	-	+	+	+	+	+	+	-
	Genus: <i>Dactylosaster</i>									
15.	<i>Dactylosaster cylindricus cylindricus</i> (Lamarck, 1816)	+	-	-	-	-	+	-	+	-
	Family: ASTERINIDAE Genus: <i>Asterina</i>									
16.	<i>Asterina sarsini</i> (de Loriol, 1897)	+	-	+	-	+	-	+	+	-
	Class: ECHINOIDEA Order: DIADEMATOIDA Family: DIADEMATIDAE Genus: <i>Diadema</i>									
17.	<i>Diadema savignyi</i> (Michelin, 1845)	+	-	-	+	+	-	-	+	+

Table 31. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
18.	<i>Diadema setosum</i> (Leske, 1778)	-	+	-	+	-	+	+	+	-
	Genus: <i>Echinothrix</i>									
19.	<i>Echinothrix calamaris</i> (Pallas, 1774)	+	-	+	-	-	+	-	+	-
	Order: CIDAROIDA Family: ECHINOMETRIDAE Genus: <i>Echinometra</i>									
20.	<i>Echinometra mathei</i> (de Blainville, 1825)	+	-	+	+	+	-	-	+	+
	Family: CIDAROIDEAE Genus: <i>Prinocidaris</i>									
21.	<i>Prinocidaris verticillata</i> (Lamarck, 1816)	+	+	-	+	-	+	+	+	-
	Genus: <i>Phyllacanthus</i>									
22.	<i>Phyllacanthus imperialis</i> (Lamarck, 1816)	+	-	+	+	-	+	-	+	+
	Class: OPHIUROIDEA Order: OPHIURIDA Family: OPHIACTIDAE Genus: <i>Ophiactis</i>									
23.	<i>Ophiactis savignyi</i> (Muller & Troschel, 1842)	+	-	-	+	+	-	-	-	+
24.	<i>Ophiactis modesta</i> (Brock, 1888)	-	+	+	-	+	-	-	+	+
	Family: OPHIOTRICHIDAE Genus: <i>Macrophiothrix</i>									
25.	<i>Macrophiothrix longipeda</i> (Lamarck, 1816)	-	-	-	+	+	-	+	+	+
	Genus: <i>Ophiiothrix</i>									
26.	<i>Ophiiothrix (Keystonia) nereidina</i> (Lamarck, 1816)	-	-	+	-	-	-	-	+	-
27.	<i>Ophiiothrix fragilis</i> (Aleildgaard, 1789)	+	-	+	+	+	+	+	+	+

Table 31. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Family: OPHIURIDAE Genus: <i>Ophiolepis</i>									
28.	<i>Ophiolepis superba</i> (H. L. Clark, 1842)	+	-	+	+	+	-	-	+	-
	Genus: <i>Ophioelegans</i>									
29.	<i>Ophioelegans cincta</i> (Mkuller & Troschel, 1841)	-	-	+	-	+	-	+	-	+
	Family: OPHIOCOMIDAE Genus: <i>Ophiocoma</i>									
30.	<i>Ophiocoma dentata</i> (Muller & Troschel, 1842)	+	-	+	-	+	-	-	+	+
31.	<i>Ophiocoma erinaceus</i> (Muller & Troschel, 1842)	+	-	+	-	-	+	-	+	-
32.	<i>Ophiocoma pussila</i> (Brock, 1888)	+	-	-	+	-	+	+	+	-
33.	<i>Ophiocoma scolopendrina</i> (Lamarck, 1816)	-	+	-	-	+	-	+	-	-
	Genus: <i>Ophiarthrum</i>									
34.	<i>Ophiarthrum pictum</i> (Muller & Troschel, 1842)	-	-	-	+	-	-	-	-	-
	Class: HOLOTHUROIDEA Order: ASPIDOCHIROTIDA Family: ASPIDOCHIROTIDA Genus: <i>Actinopyga</i>									
35.	<i>Actinopyga mauritiana</i> (Quoy & Gaimard, 1833)	+	+	+	+	+	+	+	+	+
	Genus: <i>Holothuria</i>									
36.	<i>Holothuria atra</i> (Jaeger, 1833)	+	+	+	+	+	+	+	+	+
37.	<i>Holothuria pyxis</i> (Selenka, 1867)	+	+	+	-	-	+	+	+	+
38.	<i>Holothuria impatiens</i> (Forskal, 1775)	+	+	+	-	+	+	-	+	
39.	<i>Holothuria fuscocinerea</i> (Jaeger, 1833)	+	+	-	+	-	+		+	+
	Genus: <i>Bohadschia</i>									
40.	<i>Bohadschia marmorata</i> (Jaeger, 1833)	+	+	-	-	-	+	+	-	-

Table 31. contd.

Sl. No.	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastri Nagar	Galathea Mouth	Indira Point	Kopen Heat
	Family: STICHOPODIDAE Genus: <i>Stichopus</i>									
41.	<i>Stichopus chloranatus</i> (Brandt,1835)	+	+	+	-	+	-	-	+	-
42.	<i>Stichopus vastus</i> (Sluiter, 1887)	+	-	+	+	-	+	-	-	+
43.	<i>Stichopus variegatus</i> (Semper, 1868)	+	+	+	-	-	+	+	+	-
	Family: SYNAPTIDAE Genus: <i>Synapta</i>									
44.	<i>Synapta maculata</i> (Chamisso, 1821)	+	+	-	+	-	+	+	+	-
	Family: OREASTERIDAE Genus: <i>Culcita</i>									
45.	<i>Culcita novaguineae</i> (Muller & Troschel, 1842)	+	-	+	-	+	-	+	-	+
	Family: ACANTHASTERIDAE Genus: <i>Acanthaster</i>									
46.	<i>Acanthaster planci</i> (Linneaus, 1758)	+	+	-	+	-	+	+	-	+
	Family: MOLPADIIDAE Genus <i>Acaudina</i>									
47.	<i>Acaudina malpadioides</i> (Semper, 1868)	+	+	-	+	-	+	+	+	+
	Family: LABIDODEMATIDAE Genus: <i>Labidodemas</i>									
48.	<i>Labidodemas rugosum</i> (Ludwig, 1875)	+	+	+	-	+	-	+	+	+
	Total no. of species	37	21	26	28	26	26	24	37	23
	Total no. of genera	25	16	20	25	23	20	22	27	20
	Total no. of families	19	13	14	17	14	12	17	17	16

The calculated value for Shannon-Weaner Diversity index of echinoderms was maximum at Laxman Beach (3.267) and minimum (2.703) at Shastri Nagar. The Menhinick diversity index presented the higher index of 2.384 at Indira Point and lower

index of 1.204 at B' Quarry (Fig. 41). Equitability index of echinoderms was maximum at Joginder Nagar (0.9179) whereas minimum was recorded at B' Quarry (0.7456). Pileou's evenness index was highest at Joginder Nagar (0.7628) and lowest at B' Quarry (0.4609) while, Simpson's diversity index calculated as maximum at Laxman Beach (0.9518) and minimum was at B' Quarry (0.8355) (Fig. 42). Margalef community index and Fisher alpha diversity index showed higher value for Indira Point (6.682 and 12.38) and the lower value at B' Quarry (3.498 and 5.122) respectively (Fig. 43). Dominance index varied between 0.0482 and 0.1645 at Laxman Beach and B' Quarry respectively. Berger-Parker diversity index showed maximum values for B' Quarry (0.2895) while the minimum (0.09901) at Laxman Beach area (Fig. 44).

The species Similarity Index of echinoderms recorded at different places of Great Nicobar Island is given in Table 32. The low similarity of 0.33 recorded between B' Quarry & Joginder Nagar and high similar of 0.81 at Laxman Beach and Indira Point.

Table 32. Similarity Index of Echinoderms at nine sites of Great Nicobar Island

	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
Laxman Beach	0.57	0.67	0.71	0.61	0.76	0.63	0.81	0.61
B' Quarry		0.33	0.44	0.45	0.66	0.6	0.61	0.48
Joginder Nagar			0.42	0.59	0.55	0.42	0.7	0.47
Laxmi Nagar				0.53	0.64	0.55	0.68	0.56
Gandhi Nagar					0.33	0.5	0.64	0.66
Shastry Nagar						0.53	0.73	0.47
Galathea Mouth							0.47	0.57
Indira Point								0.51

All the 5 classes of echinoderms were recorded during the study period. A maximum of 15 species was observed under the class Holothuroidea where as the minimum of 6 species recorded under Classes Asteroidea and Echinoidea (Table 33). Great Nicobar Island represented 11.52% echinoderms of Andaman & Nicobar Islands.

Table 33. Percentage composition of different classes of echinoderms

Sl. No.	Class	No. of Species in A & N Islands	No. of species in GNBR	Percentage at GNBR
1	Crinoidea	50	10	20%
2	Asteroidea	104	6	5.76%
3	Ophiuroidea	103	12	11.65%

Table 33. contd.

Sl. No.	Class	No. of Species in A & N Islands	No. of species in GNBR	Percentage at GNBR
4	Echinoidea	80	6	7.50%
5	Holothuroidea	88	14	17.00%
	Total	425	48	11.52%

The density of echinoderms was ranged from 10 ind./10sq.m at Laxman Beach and 22 ind./10sq.m. at Laxmi Nagar (Fig. 45)

Fishes

A total of 314 species under 143 genera, 54 families, 13 orders and 2 classes were recorded from Great Nicobar Island during the study period. A maximum number of 251 species were reported from Laxmi Nagar whereas the minimum of 83 species were observed from Shastry Nagar (Table 34). Among them only four species viz. *Lutjanus decussatus*, *Scolopsis lineatus*, *Zebrasoma scopas* and *Zanclus cornutus* were common to all the places of study. No definite trend of distribution of fishes at different places of study in Great Nicobar Island could be observed (Plates 25-28).

Table 34. Fishes of Great Nicobar Island

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
	Class CHONDRICHTHYES Sub Class ELASMOBRANCHII Order RAJIFORMES Family RHINOBATIDAE (Guitarfishes) Genus <i>Rhinobatos</i>									
1	<i>Rhinobatos granulates</i> Cuvier, 1829	+			+	+		+	+	+
	Family DASYATIDAE (Stingrays) Genus <i>Dasyatis</i>									
2	<i>Dasyatis kuhlii</i> (Muller & Henle, 1841)	+		+	+	+		+	+	+

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
	Class OSTEICHTHYES Subclass ACTINOPTERYGII Order ANGUILLIFORMES Family CONGRIDAE (Conger eels) Genus <i>Conger</i>									
3	<i>Conger cinereus</i> Ruppell, 1830	+			+			+		
	Family MURAENIDAE (Moray eels) Genus <i>Echidna</i>									
4	<i>Echidna nebulosa</i> (Ahl. 1789)	+			+	+		+	+	
	Genus <i>Gymnothorax</i>									
5	<i>Gymnothorax fimbriatus</i> (Bennett, 1832)				+		+			+
6	<i>Gymnothorax javanicus</i> (Bleeker, 1859)		+	+	+				+	
	Order GONORYNCHIFORMES Family CHANIDAE (Milkfish) Genus <i>Chanos</i>									
7	<i>Chanos chanos</i> (Forsskal, 1775)	+		+	+	+		+	+	+
	Order SILURIFORMES Family PLOTOSIDAE (Eel catfishes) Genus <i>Plotosus</i>									
8	<i>Plotosus lineatus</i> (Thunberg, 1787)				+					
	Order BERYCIFORMES Family HOLOCENTRIDAE (Squirrelfishes, soldierfishes) Genus <i>Myripristis</i>									
9	<i>Myripristis berndti</i> Jordan and Evermann, 1903	+	+		+	+		+		+

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
	Genus <i>Neoniphon</i>									
10	<i>Neoniphon samara</i> (Forsskal,1775)				+		+		+	
	Genus <i>Sargocentron</i>									
11	<i>Sargocentron caudimaculatum</i> (Ruppell, 1838)			+	+	+				+
12	<i>Sargocentron rubrum</i> (Forsskal, 1775)	+	+	+	+		+		+	
13	<i>Sargocentron spiniferum</i> (Forsskal,1775)				+	+		+		
	Order AULOPIFORMES Family SYNODONTIDAE (Lizardfishes) Genus <i>Saurida</i>									
14	<i>Saurida gracilis</i> (Quoy & Gaimard, 1824)	+		+		+		+	+	
	Genus <i>Synodus</i>									
15	<i>Synodus variegates</i> (Lacepede,1803)	+		+	+	+		+		+
16	<i>Synodus dermatogenys</i> Fowler, 1912							+		+
	Order LOPHIFORMES Family ANTENNARIIDAE (Anglers) Genus <i>Histrio</i>									
17	<i>Histrio histrio</i> (Linnaeus,1758)		+		+		+		+	+
	Order BELONIFORMES Family BELONIDAE (Needlefishes) Genus <i>Tylosurus</i>									
18	<i>Tylosurus crocodiles crocodiles</i> (Peron & Le Sueur, 1821)			+	+			+	+	+

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
	Family PEGASIDAE (Seamoths) Genus <i>Europegagus</i>									
19	<i>Europegagus draconis</i> (Linnaeus, 1766)				+					
	Genus <i>Pegasus</i>									
20	<i>Pegasus volitans</i> Linnaeus, 1758	+			+	+			+	+
	Order SYNGANATHIFORMES Family AULOSTOMIDAE (Trumpetfishes) Genus <i>Aulostomus</i>									
21	<i>Aulostomus chinensis</i> (Linnaeus, 1766)			+	+					
	Family FISTULARIDAE (Cornetfishes) Genus <i>Fistularia</i>									
22	<i>Fistularia commersonii</i> Ruppell, 1838	+		+	+			+		
	Family SYNGNATHIDAE (Pipefishes and seahorses) Genus <i>Corythoichthys</i>									
23	<i>Corythoichthys intestinalis</i> (Ramsay, 1881)				+	+			+	+
24	<i>Corythoichthys ocellatus</i> Herald, 1953	+		+						
25	<i>Corythoichthys schultzi</i> Harald, 1953			+					+	+
	Genus <i>Doryhamphus</i>									
26	<i>Doryhamphus excises excises</i> Kaup, 1856				+					+
	Genus <i>Halicampus</i>									
27	<i>Halicampus macrorhynchus</i> Bamber, 1915				+			+	+	

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
	Genus <i>Microphis</i>									
28	<i>Microphis tenuis</i> Blyth, 1859	+		+	+					
	Family Centriacidae (Razerfishes) Genus <i>Aeoliscus</i>									
29	<i>Aeoliscus strigatus</i> (Gunther, 1861)				+				+	
	Family Solenostomidae (Ghost pipefishes) Genus <i>Solenostomus</i>									
30	<i>Solenostomus cyanopterus</i> Bleeker, 1854				+				+	
	Order SCORPAENIFORMES Family SCORPAENIDAE (Scorpionfishes or Rockfishes) Genus <i>Dendrochirus</i>									
31	<i>Dendrochirus zebra</i> (Cuvier, 1829)			+	+					+
	Genus <i>Pterois</i>									
32	<i>Pterois miles</i> (Bennett, 1828)	+			+					
33	<i>Pterois radiata</i> Cuvier, 1829				+			+		+
34	<i>Pterois volitans</i> (Linnaeus, 1758)			+	+	+	+	+	+	+
	Family TETRAROGIDAE (Wasp fishes) Genus <i>Taenianotus</i>									
35	<i>Taenianotus triacanthus</i> Lacepède, 1802	+		+				+	+	
	Family PLATYCEPHALIDAE (Flatheads) Genus <i>Eurycephalus</i>									
36	<i>Eurycephalus carbunculus</i> (Valenciennes, 1833)				+				+	

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
	Genus <i>Eurycephalus</i>									
37	<i>Thysanophrys chiltonae</i> Schultz, 1966	+		+		+		+	+	+
	Order PERCIFORMES Family SERRANIDAE (Sra basses, groupers and fairy basslets) Genus <i>Athaloperca</i>									
38	<i>Athaloperca rogga</i> (Forsskal, 1775)				+	+				+
	Genus <i>Anyperodon</i>									
39	<i>Anyperodon leucogrammicus</i> (Valenciennes, 1828)	+			+	+				
	Genus <i>Cephalopholis</i>									
40	<i>Cephalopholis argus</i> Bloch & Schneider, 1801)		+			+	+	+	+	+
41	<i>Cephalopholis boenack</i> (Bloch, 1790)			+	+					+
42	<i>Cephalopholis miniata</i> (Forsskal, 1775)	+	+	+			+	+		
43	<i>Cephalopholis sexmaculata</i> (Ruppell, 1830)	+	+		+	+			+	
44	<i>Cephalopholis urodeta</i> (Forster, 1801)			+				+		
	Genus <i>Cromileptes</i>									
45	<i>Cromileptes altivelis</i> (Valenciennes, 1828)				+					
	Genus <i>Epinephelus</i>									
46	<i>Epinephelus areolatus</i> (Forsskal, 1775)				+	+				
47	<i>Epinephelus caeruleopunctatus</i> (Bloch, 1790)	+	+	+	+			+	+	+
48	<i>Epinephelus fasciatus</i> (Forsskal, 1775)	+	+		+			+		
49	<i>Epinephelus flavocaeruleus</i> (Lacepede, 1802)				+					+

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
50	<i>Epinephelus longispinis</i> (Kner, 1865)			+	+				+	
51	<i>Epinephelus macrospilos</i> (Bleerer, 1855)	+	+		+					
52	<i>Epinephelus malabaricus</i> (Bloch & Schneider, 1801)	+			+	+	+	+		
53	<i>Epinephelus merra</i> Bloch, 1793	+	+		+				+	+
	Genus <i>Plectropomus</i>									
54	<i>Plectropomus areolatus</i> (Ruppell, 1830)		+	+	+	+	+			
	Genus <i>Pseudanthias</i>									
55	<i>Pseudanthias bimaculatus</i> (Smith, 1955)				+	+				
56	<i>Pseudanthias cooperi</i> (Regan, 1902)				+			+		+
57	<i>Pseudanthias ignitus</i> (Randall and Lubbock, 1981)	+				+				+
58	<i>Pseudanthias hypelosoma</i> Bleeker, 1878	+	+		+		+			
59	<i>Pseudanthias squamipinnis</i> (Peters, 1855)			+	+				+	+
	Genus <i>Variola</i>									
60	<i>Variola louti</i> (Forsskal, 1775)			+		+		+	+	+
	Family PSEODOCHROMIDAE (Dottybacks) Genus <i>Ogilbyina</i>									
61	<i>Ogilbyina novaehollandiae</i> (Steindachner, 1879)	+			+	+		+		
	Family PLESIOPIDAE (Roundheads) Genus <i>Plesiops</i>									
62	<i>Plesiops corallicola</i> Bleeker, 1853				+				+	+

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
	Family APOGONIDAE (Cardinal fishes) Genus <i>Apogon</i>									
63	<i>Apogon angustatus</i> (Smith & Radcliffe, 1911)				+					
64	<i>Apogon aureus</i> (Lacepedae, 1802)		+	+			+		+	+
65	<i>Apogon compressus</i> (Smith and Radcliffe, 1911)				+					
66	<i>Apogon cookie</i> Macleay, 1881				+			+		+
67	<i>Apogon cyanosoma</i> Bleeker, 1853				+	+			+	
68	<i>Apogon fraenatus</i> Valenciennes, 1832				+					+
69	<i>Apogon fragilis</i> Smith, 1961							+	+	
70	<i>Apogon kallopterus</i> Bleeker, 1856		+	+			+		+	
71	<i>Apogon lateralis</i> Valenciennes, 1832				+					+
72	<i>Apogon moluccensis</i> Valenciennes, 1832			+	+					
73	<i>Apogon novemfasciatus</i> Cuvier, 1828							+		+
74	<i>Apogon properupta</i> (Whitley, 1964)			+	+	+				
	Genus <i>Archamia</i>									
75	<i>Archamia fucata</i> (Cantor, 1849)							+	+	
	Genus <i>Cheilodipterus</i>									
76	<i>Cheilodipterus artus</i> Smith, 1961				+					
77	<i>Cheilodipterus macrodon</i> (Lacepede, 1802)			+	+					+
78	<i>Cheilodipterus quinquelineatus</i> Cuvier, 1828			+			+	+	+	
	Genus <i>Rhabdamia</i>									
79	<i>Rhabdamia gracilis</i> (Bleeker, 1856)				+					+

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
	Genus <i>Zoramia</i>									
80	<i>Zoramia leptacanthus</i> (Bleeker, 1857)	+			+	+				+
	Family HAEMULIDAE (Grunts) Genus <i>Plectorhinchus</i>									
81	<i>Plectorhinchus albobittatus</i> (Ruppell, 1838)				+		+		+	
82	<i>Plectorhinchus chaetodonoides</i> Lacepede, 1801	+		+	+	+				+
83	<i>Plectorhinchus flavomaculatus</i> (Cuvier, 1830)									+
84	<i>Plectorhinchus gibbosus</i> (Lacepede, 1802)	+	+	+	+			+	+	
85	<i>Plectorhinchus orientalis</i> (Bloch, 1793)				+	+	+	+	+	
	Genus <i>Pomodasys</i>									
86	<i>Pomodasys argenteus</i> (Forsskal, 1775)	+			+					
	Family LUTJANIDAE Genus <i>Aprion</i>									
87	<i>Aprion virescens</i> Valenciennes, 1830				+	+				+
	Genus <i>Lutjanus</i>									
88	<i>Lutjanus argentimaculatus</i> (Forsskal, 1775)			+	+					+
89	<i>Lutjanus bengalensis</i> (Bloch, 1790)		+	+	+		+		+	+
90	<i>Lutjanus bohar</i> (Forsskal, 1775)	+		+	+	+				
91	<i>Lutjanus decussatus</i> (Cuvier, 1828)	+	+	+	+	+	+	+	+	+
92	<i>Lutjanus fulviflamma</i> (Forsskal, 1775)			+	+		+	+	+	+
93	<i>Lutjanus fulvus</i> (Schneider, 1801)	+			+	+		+		
94	<i>Lutjanus gibbus</i> (Forsskal, 1775)	+		+	+		+			

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
95	<i>Lutjanus kasmira</i> (Forsskal, 1775)		+		+			+	+	+
96	<i>Lutjanus lutjanus</i> Bloch, 1790)				+		+			+
97	<i>Lutjanus monostigma</i> (Cuvier, 1828)		+		+	+	+			+
98	<i>Lutjanus quinquelineatus</i> (Bloch, 1790)			+	+			+	+	
99	<i>Lutjanus rivulatus</i> (Cuvier, 1828)				+					
100	<i>Lutjanus russelli</i> (Bleeker, 1849)		+	+	+		+	+		
	Genus <i>Macolor</i>									
101	<i>Macolor niger</i> (Forsskal, 1775)				+	+			+	
	Genus <i>Paracaesio</i>									
102	<i>Paracaesio xanthura</i> (Bleeker, 1869)	+	+		+	+	+	+		+
	Genus <i>Symphorus</i>									
103	<i>Symphorus nematophorus</i> (Bleeker, 1860)									+
	Family CAESIONIDAE (Fusiliers) Genus <i>Caesio</i>									
104	<i>Caesio caerulaurea</i> Lacepede, 1801			+	+					
105	<i>Caesio cuning</i> (Bloch, 1791)				+			+	+	+
106	<i>Caesio lunaris</i> Cuvier, 1830			+	+	+				+
107	<i>Caesio teres</i> Seale, 1906			+	+	+				+
108	<i>Caesio xanthonota</i> (Bleeker, 1853)			+	+	+			+	+
	Genus <i>Gymnocaesio</i>									
109	<i>Gymnocaesio gymnoptera</i> (Bleeker, 1853)				+					
	Genus <i>Pterocaesio</i>									
110	<i>Pterocaesio chrysozona</i> (Cuvier, 1830)				+					+
111	<i>Pterocaesio marri</i> Schultz, 1953				+					
112	<i>Pterocaesio pisang</i> (Bleeker, 1853)			+	+	+		+	+	+

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
113	<i>Pterocaesio tile</i> (Cuvier, 1830)			+					+	
114	<i>Pterocaesio trilineata</i> Carpenter, 1987									+
	Family Lethrinidae (Emperors or scavengers) Genus <i>Gnathodentex</i>									
115	<i>Gnathodentex aurolinaetus</i> Lacepede, 1802)			+	+					+
	Genus <i>Lethrinus</i>									
116	<i>Lethrinus erythracanthus</i> Valenciennes, 1830									+
117	<i>Lethrinus harak</i> (Forsskal, 1775)	+	+	+	+	+		+	+	+
	Genus <i>Monotaxis</i>									
118	<i>Monotaxis grandoculis</i> (Forsskal, 1775)		+	+	+	+				+
	Family NEMIPTERIDAE (Threadfin brems,Whiptail brems) Genus <i>Scolopsis</i>									
119	<i>Scolopsis bilineata</i> (Bloch, 1793)	+	+	+	+	+	+	+	+	
120	<i>Scolopsis ciliates</i> (Lacepede, 1802)	+						+		+
121	<i>Scolopsis lineatus</i> Quoy & Gaimard, 1824	+	+	+	+	+	+	+	+	+
	Family KYPHOSIDAE (Sea chubs) Genus <i>Kyphosus</i>									
122	<i>Kyphosus cinerascens</i> (Forsskal, 1775)	+		+	+				+	+
	Family EPHIPPIDAE (Spadefishes,batfishes) Genus <i>Platax</i>									
123	<i>Platax orbicularius</i> (Forsskal, 1775)		+		+			+	+	

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
124	<i>Platax pinnatus</i> (Linnaeus, 1758)			+					+	+
125	<i>Platax teira</i> (Forsskal, 1775)			+	+	+				
	Family MONODACTYLIDAE (Moonfishes) Genus <i>Monodactylus</i>									
126	<i>Monodactylus argenteus</i> (Linnaeus, 1758)			+	+	+			+	
	Family MULLIDAE (Goatfishes) Genus <i>Mulloidichthys</i>									
127	<i>Mulloidichthys vanicolensis</i> (Valenciennes, 1831)	+		+	+			+		
	Genus <i>Parupeneus</i>									
128	<i>Parupeneus barberinus</i> (Lacepede, 1801)					+		+		+
129	<i>Parupeneus bifasciatus</i> (Lacepede, 1801)			+	+					
130	<i>Parupeneus cyclostomus</i> (Lacepede, 1801)		+	+			+		+	
131	<i>Parupeneus indicus</i> (Shaw, 1803)				+	+				
132	<i>Parupeneus macronema</i> (Lacepede, 1801)		+			+			+	+
133	<i>Parupeneus pleurostigma</i> (Bennett, 1831)				+		+		+	+
	Genus <i>Upeneus</i>									
134	<i>Upeneus tragula</i> Richardson, 1846			+	+	+			+	+
	Family MALACANTHIDAE (Talifishes) Genus <i>Malacanthus</i>									
135	<i>Malacanthus brevirostris</i> Guichenot, 1848				+			+	+	+

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
136	<i>Malacanthus latovittatus</i> (Lacepede, 1801)			+						+
	Family POMACANTHIDAE (Angelfishes) Genus <i>Centropyge</i>									
137	<i>Centropyge eibli</i> Klausewitz, 1963	+			+	+		+	+	
138	<i>Centropyge flavipectoralis</i> Randall and Klausewitz, 1977				+					+
139	<i>Centropyge multispinis</i> (Playfair, 1867)			+	+					
	Genus <i>Chaetodontoplus</i>									
140	<i>Chaetodontoplus mesoleucus</i> (Bloch, 1787)				+					+
	Genus <i>Pomacanthus</i>									
141	<i>Pomacanthus annularis</i> (Bloch, 1787)	+	+	+			+			
142	<i>Pomacanthus imperator</i> (Bloch, 1787)	+		+	+				+	+
143	<i>Pomacanthus semicirculatus</i> (Cuvier, 1831)			+	+				+	
144	<i>Pomacanthus xanthometopon</i> (Bleeker, 1853)			+						+
	Genus <i>Pygoplites</i>									
145	<i>Pygoplites diacanthus</i> (Boddaert, 1772)			+	+	+			+	+
	Family CHAETODONTIDAE (Butterflyfishes) Genus <i>Chaetodon</i>									
146	<i>Chaetodon auriga</i> Forsskal, 1775	+	+	+	+	+	+	+	+	
147	<i>Chaetodon bennetti</i> Cuvier, 1831									+
148	<i>Chaetodon citrinellus</i> Cuvier, 1831									+
149	<i>Chaetodon collare</i> Bloch, 1787	+	+		+	+	+	+	+	+

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
150	<i>Chaetodon decussatus</i> Cuvier, 1829	+	+	+		+	+	+		
151	<i>Chaetodon ephippium</i> Cuvier, 1831		+		+					+
152	<i>Chaetodon falcula</i> Bloch, 1793	+			+			+	+	+
153	<i>Chaetodon guttatissimus</i> Bennett, 1832				+	+				
154	<i>Chaetodon interruptus</i> Ahl, 1923									+
155	<i>Chaetodon kleinii</i> Bloch, 1790				+					+
156	<i>Chaetodon lineolatus</i> Cuvier, 1831				+					+
157	<i>Chaetodon lunula</i> (Lacepede, 1802)	+		+	+	+	+	+	+	
158	<i>Chaetodon melannotus</i> Bloch & Schneider, 1801				+		+			+
159	<i>Chaetodon meyeri</i> Bloch & Schneider, 1801				+	+		+	+	
160	<i>Chaetodon octofasciatus</i> Bloch, 1787				+					+
161	<i>Chaetodon oxycephalus</i> Bleeker, 1853	+			+		+			+
162	<i>Chaetodon plebeius</i> Cuvier, 1831	+	+	+	+	+			+	+
163	<i>Chaetodon rafflesii</i> Bennett, 1830		+		+	+				+
164	<i>Chaetodon triangulum</i> Cuvier, 1831				+	+	+		+	
165	<i>Chaetodon trifascialis</i> Quoy & Gaimard, 1825	+		+	+	+		+		
166	<i>Chaetodon trifasciatus</i> Park, 1797	+		+	+			+	+	+
167	<i>Chaetodon vagabundus</i> Linnaeus, 1758	+	+	+	+	+		+	+	+
	Genus <i>Coradion</i>									
168	<i>Coradion altivelis</i> McCulloch, 1916									+
	Genus <i>Forcipiger</i>									
169	<i>Forcipiger flavissimus</i> Jordan & McGregor, 1898	+			+					
	Genus <i>Hemitaurichthys</i>									
170	<i>Hemitaurichthys zoster</i> (Bennet, 1831)				+					+

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
	Genus <i>Heniochus</i>									
171	<i>Heniochus acuminatus</i> (Linnaeus, 1758)	+		+	+	+		+	+	+
172	<i>Heniochus diphreutes</i> Jordan, 1903	+	+		+		+			
173	<i>Heniochus pleurotaenia</i> Ahl, 1923	+	+	+	+			+	+	+
174	<i>Heniochus singularius</i> Smith & Radcliffe, 1911	+	+			+		+		+
	Family Carangidae (Jacks, Kingfishes) Genus <i>Caranx</i>									
175	<i>Caranx melampygus</i> Cuvier, 1833				+		+	+	+	+
176	<i>Caranx sexfasciatus</i> Quoy & Gaimard, 1825		+	+	+	+			+	
	Family CIRRHITIDAE (Hawkfishes) Genus <i>Cirrhitichthys</i>									
177	<i>Cirrhitichthys oxycephalus</i> (Bleeker, 1855)	+	+		+		+		+	
	Genus <i>Paracirrhites</i>									
178	<i>Paracirrhites forsteri</i> (Schneider, 1801)	+		+	+	+		+		+
	Family PEMPHERIDAE (Sweepers)									
	Genus <i>Parapriacanthus</i>									
179	<i>Parapriacanthus ransonneti</i> Steindachner, 1870		+	+	+			+		
	Genus <i>Pempheris</i>									
180	<i>Pempheris vanicolensis</i> Cuvier, 1831	+		+	+		+		+	+

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
	Family POMACENTRIDAE (Damsel-fishes) Genus <i>Abudefduf</i>									
181	<i>Abudefduf bengalensis</i> (Bloch, 1787)		+	+	+		+			
182	<i>Abudefduf saxatilis</i> (Linnaeus, 1758)		+	+	+				+	+
183	<i>Abudefduf sexfasciatus</i> Lacepede, 1801		+				+			+
184	<i>Abudefduf vaigiensis</i> (Quoy & Gaimard, 1825)		+	+	+	+	+		+	+
	Genus <i>Amblyglyphidodon</i>									
185	<i>Amblyglyphidodon aureus</i> (Cuvier, 1830)	+	+	+	+		+			
186	<i>Amblyglyphidodon indicus</i> Allen & Randall, 2002	+	+				+	+		+
187	<i>Amblyglyphidodon ternatensis</i> (Bleeker, 1853)		+	+					+	
	Genus <i>Amphiprion</i>									
188	<i>Amphiprion akallopisos</i> Bleeker, 1853.	+	+		+	+			+	
189	<i>Amphiprion clarkii</i> (Bennett, 1830)	+	+		+					
190	<i>Amphiprion ephippium</i> (Bloch, 1790)		+	+		+				+
191	<i>Amphiprion ocellaris</i> Cuvier, 1830	+	+	+	+				+	+
	Genus <i>Chromis</i>									
192	<i>Chromis flavicauda</i> (Gunther, 1880)				+					
193	<i>Chromis opercularis</i> Gunther, 1867				+	+		+	+	+
194	<i>Chromis ternatensis</i> (Bleeker, 1856)				+					
195	<i>Chromis viridis</i> (Cuvier, 1830)			+						+
196	<i>Chromis xanthochira</i> (Bleeker, 1851)				+		+			
	Genus <i>Chrysiptera</i>									
197	<i>Chrysiptera brownriggi</i> (Bennett, 1828)	+		+	+					
198	<i>Chrysiptera glauca</i> (Cuvier, 1830)	+				+		+	+	+

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
199	<i>Chrysiptera leucopoma</i> (Cuvier, 1830)				+					
200	<i>Chrysiptera rollandi</i> (Whitley, 1961)					+			+	+
201	<i>Chrysiptera talboti</i> (Allen, 1975)				+					+
202	<i>Chrysiptera unimaculata</i> (Cuvier, 1830)		+	+	+		+			+
	Genus <i>Dascyllus</i>									
203	<i>Dascyllus aruanus</i> (Linnaeus, 1758)				+	+				+
204	<i>Dascyllus carneus</i> Fischer, 1885				+	+		+	+	
205	<i>Dascyllus trimaculatus</i> (Ruppell, 1829)	+	+		+		+			+
	Genus <i>Dischistodus</i>									
206	<i>Dischistodus perspicillatus</i> (Cuvier, 1830)				+					+
	Genus <i>Neopomacentrus</i>									
207	<i>Neopomacentrus azysron</i> (Bleeker, 1877)			+	+				+	+
	Genus <i>Plectroglyphidodon</i>									
208	<i>Plectroglyphidodon dickii</i> (Lienard, 1839)				+			+	+	
209	<i>Plectroglyphidodon lacrymatus</i> (Quoy & Gaimard, 1825)				+		+			+
	Genus <i>Pomacentrus</i>									
210	<i>Pomacentrus alleni</i> Burgess, 1981				+	+				+
211	<i>Pomacentrus amboinensis</i> Bleeker, 1868		+	+					+	
212	<i>Pomacentrus bankanensis</i> Bleeker, 1853	+			+				+	+
213	<i>Pomacentrus chrysurus</i> Cuvier, 1830	+			+	+		+		+
214	<i>Pomacentrus lepidogenys</i> Fowler and Ball, 1928			+	+	+		+	+	+
215	<i>Pomacentrus moluccensis</i> Bleeker, 1853			+	+			+	+	+
216	<i>Pomacentrus nagasakiensis</i> Tanaka, 1917				+	+	+	+		

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
217	<i>Pomacentrus philippinus</i> Evermann and Seale, 1907	+		+					+	+
	Genus <i>Premnas</i>									
218	<i>Premnas biaculeatus</i> (Bloch, 1790)	+		+	+					
	Family LABRIDAE (Wrasses) Genus <i>Bodianus</i>									
219	<i>Bodianus diana</i> (Lacepede, 1801)	+	+	+	+					
220	<i>Bodianus mesothorax</i> (Bloch & Schneider, 1801)	+	+	+			+	+	+	
	Genus <i>Cheilinus</i>									
221	<i>Cheilinus fasciatus</i> (Bloch, 1791)				+	+				+
222	<i>Cheilinus trilobatus</i> Lacepede, 1801	+			+		+	+		
	Genus <i>Choerodon</i>									
223	<i>Choerodon anchorago</i> (Bloch, 1791)			+						
	Genus <i>Coris</i>									
224	<i>Coris aurilineata</i> Randall & Kuitert, 1982	+	+		+				+	
225	<i>Coris batuensis</i> (Bleeker, 1857)				+		+		+	+
	Genus <i>Epibulus</i>									
226	<i>Epibulus insidiator</i> (Pallas, 1770)				+	+		+		
	Genus <i>Gomphosus</i>									
227	<i>Gomphosus caeruleus</i> Lacepede, 1801	+	+		+	+	+	+		+
	Genus <i>Halichoeres</i>									
228	<i>Halichoeres leucoxanthus</i> Randall and Smith, 1982			+						
229	<i>Halichoeres melanurus</i> (Bleeker, 1851)	+							+	
230	<i>Halichoeres timorensis</i> (Bleeker, 1852)	+								+

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
231	<i>Halichoeres vroliki</i> (Bleeker, 1855)			+	+					+
	Genus <i>Hemigymnus</i>									
232	<i>Hemigymnus fasciatus</i> (Bloch, 1792)				+					
233	<i>Hemigymnus melapterus</i> (Bloch, 1791)	+		+			+		+	
	Genus <i>Hologymnosus</i>									
234	<i>Hologymnosus annulatus</i> (Lacepede, 1801)		+		+	+				+
	Genus <i>Labroides</i>									
235	<i>Labroides bicolour</i> Fowler & Bean, 1928			+	+				+	+
236	<i>Labroides dimidiatus</i> (Valenciennes, 1839)			+	+	+	+		+	+
	Genus <i>Macropharyngodon</i>									
237	<i>Macropharyngodon meleagris</i> (valenciennes, 1839)				+		+			
	Genus <i>Stethojulis</i>									
238	<i>Stethojulis trilineata</i> (Bloch & Schneider, 1801)				+					+
	Genus <i>Thalassoma</i>									
239	<i>Thalassoma hardwicke</i> (Bennett, 1830)				+			+		+
240	<i>Thalassoma lunare</i> (Linnaeus, 1758)			+	+	+			+	+
	Family SCARIDAE (Parrotfishes) Genus <i>Bolbomatopon</i>									
241	<i>Bolbomatopon muricatum</i> Valenciennes, 1840			+	+				+	
	Genus <i>Cetoscarus</i>									
242	<i>Cetoscarus bicolour</i> (Ruppell, 1829)	+			+	+	+		+	+

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
	Genus <i>Chlorurus</i>									
243	<i>Chlorurus sordidus</i> (Forsskal, 1775)	+			+	+				+
	Genus <i>Scarus</i>									
244	<i>Scarus ghobban</i> Forsskal, 1775		+		+	+		+	+	+
245	<i>Scarus globiceps</i> Valenciennes, 1840			+	+			+		
246	<i>Scarus niger</i> Forsskal, 1775	+	+	+	+		+		+	
	Family SPHYRAENIDAE (Barracudas) Genus <i>Sphyraena</i>									
247	<i>Sphyraena barracuda</i> (Walbaun, 1792)			+	+	+				+
248	<i>Sphyraena qenie</i> Klunzinger, 1870	+			+				+	
	Family PINGUIPEDIDAE (Sandperches) Genus <i>Parapercis</i>									
249	<i>Parapercis clathrata</i> Ogilby, 1911)	+			+					
250	<i>Parapercis hexophthalma</i> (Cuvier, 1829)	+		+	+			+	+	+
251	<i>Parapercis millepunctata</i> (Gunther, 1860)				+	+				+
252	<i>Parapercis xanthozona</i> (Bleeker, 1849)	+		+				+		+
	Family BLENIIDAE (Combtooth blennies) Genus <i>Aspidontus</i>									
253	<i>Aspidontus taeniatus</i> taeniatus (Quoy & Gaimard, 1834)			+	+				+	
	Genus <i>Ecsenius</i>									
254	<i>Ecsenius lineatus</i> Klausewitz, 1962	+		+		+		+	+	+
255	<i>Ecsenius midas</i> Starck, 1969	+			+		+			+
256	<i>Ecsenius stictus</i> Springer, 1988				+			+		

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
	Genus <i>Exallias</i>									
257	<i>Exallias brevis</i> (Kner, 1868)			+	+	+				
	Genus <i>Meiacanthus</i>									
258	<i>Meiacanthus smithi</i> Klausewitz, 1962	+			+					+
	Genus <i>Plagiotremus</i>									
259	<i>Plagiotremus phenax</i> Smith-Vaniz, 1976		+	+	+		+		+	
260	<i>Plagiotremus rhinorhynchus</i> (Bleeker, 1852)			+		+			+	+
	Family TRIPTERYGIIDAE (Threefin blennies) Genus <i>Helcogramma</i>									
261	<i>Helcogramma striatum</i> Hansen, 1986			+	+	+			+	+
	Genus <i>Ucla</i>									
262	<i>Ucla xenogrammus</i> Holleman, 1993			+	+		+		+	+
	Family GOBIIDAE (Gobies) Genus <i>Amblyeleotris</i>									
263	<i>Amblyeleotris steinitzi</i> (Klausewitz, 1974)			+	+				+	+
	Genus <i>Amblygobius</i>									
264	<i>Amblygobius decussates</i> (Bleeker, 1855)	+	+		+	+		+		
265	<i>Amblygobius hectori</i> (Smith, 1957)			+	+		+			+
266	<i>Amblygobius nocturnes</i> (Herre, 1945)	+		+	+			+	+	
267	<i>Amblygobius semicinctus</i> (Bennett, 1833)		+	+	+					+
	Genus <i>Bathygobius</i>									
268	<i>Bathygobius fuscus</i> (Ruppell, 1830)	+				+				+

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
	Genus <i>Bryaninops</i>									
269	<i>Bryaninops yongei</i> (Davis & Cohen, 1968)			+	+			+		
	Genus <i>Cryptocentru</i>									
270	<i>Cryptocentrus fasciatus</i> (Playfair and Gunther, 1867)	+			+		+		+	+
271	<i>Cryptocentrus strigillicept</i> (Jordan & Seale, 1906)	+	+	+	+				+	
	Genus <i>Ctenogobiops</i>									
272	<i>Ctenogobiops pomastictus</i> Lubbock & Polunin, 1977					+				+
	Genus <i>Eviota</i>									
273	<i>Eviota prasina</i> (Klunzinger, 1871)			+						+
274	<i>Eviota sebreei</i> Jordan and Seale, 1906			+	+				+	+
	Genus <i>Fusigobius</i>									
275	<i>Fusigobius neophytus</i> (Gunther, 1877)	+			+	+				
276	<i>Fusigobius signipinnis</i> (Hoesé & Obika, 1988)		+	+	+				+	+
	Genus <i>Istigobius</i>									
277	<i>Istigobius decoratus</i> (Herre, 1927)				+			+		+
278	<i>Istigobius ornatus</i> (Ruppell, 1830)	+			+	+				
	Genus <i>Priolepis</i>									
279	<i>Priolepis compita</i> Winterbottom, 1985									+
	Genus <i>Trimma</i>									
280	<i>Trimma naudei</i> Smith, 1957			+	+			+		
281	<i>Trimma striata</i> (Herre, 1945)	+		+	+				+	+
	Genus <i>Valenciennea</i>									
282	<i>Valenciennea puellaris</i> (Tomiya, 1956)	+			+	+				

[illegible]

Table 34. contd.

Sl. No	Species	Laxman Beach	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea mouth	Indira Point	Kopen Heat
	Genus <i>Melichthys</i>									
307	<i>Melichthys indicus</i> Randall & Klauswitz, 1973	+	+		+	+	+			
	Genus <i>Odonus</i>									
308	<i>Odonus niger</i> (Ruppell, 1836)	+			+	+	+	+	+	+
	Genus <i>Rhinecanthus</i>									
309	<i>Rhinecanthus aculeatus</i> (Linnaeus, 1758)	+	+	+	+	+	+	+	+	
	Genus <i>Sufflamen</i>									
310	<i>Sufflamen chrysopterus</i> (Bloch & Schneider, 1801)	+	+	+	+	+	+	+		+
	Family OSTRACIIDAE (Boxfishes and trunkfishes) Genus <i>Ostracion</i>									
311	<i>Ostracion cubicus</i> Linnaeus, 1758			+	+	+	+		+	
	Family TERTRAODONTIDAE (Puffers) Genus <i>Arothron</i>									
312	<i>Arothron mappa</i> (Lesson, 1831)		+	+	+		+		+	
313	<i>Arothron nigropunctatus</i> (Bloch & Schneider, 1801)	+			+	+		+		
314	<i>Arothron stellatus</i> (Bloch & Schneider, 1801)									+
	Total no. of species	119	87	144	251	121	83	110	137	171
	Total no. of genera	79	52	89	134	83	58	71	94	102
	Total no. of families	37	27	34	53	40	30	40	49	44
	Total no. of orders	11	6	11	13	11	7	11	12	12

The value for Shannon-Weaner diversity Index ranged from 3.833 at Shastry Nagar to 4.897 at Laxmi Nagar. The Menhinick diversity Index registered maximum value for Laxmi Nagar (5.887) whereas the minimum at B' Quarry was least diversified (3.245) (Fig. 46). Equitability index of fishes was high at Galathea Mouth (0.8986) and low at Shastry Nagar (0.8674), similarly Pileou's evenness Index also showed maximum value at Galathea Mouth (0.621) whereas minimum at Kopen Heat (0.5165). Simpson's diversity index was high at Laxmi Nagar (0.9884) and low at B' Quarry (0.9719) (Fig. 47). The elevated value of Margalef community Index found at Laxmi Nagar (33.31) and it was least at Shastry Nagar (13.03). Fisher Alpha diversity Index showed maximum value for Laxmi Nagar (78.95) while the minimum value registered at Shastry Nagar (27.36) area (Fig. 48). Dominance Index showed a maximum value for Shastry Nagar (0.0333) and minimum value for Laxmi Nagar (0.0116). In case of Berger-Parker diversity Index highest value was recorded for Laxman Beach (0.0869) and the lowest (0.0341) at Laxmi Nagar (Fig. 49).

The data on species Similarity Index at different places of Great Nicobar Island is depicted in Table 35. Maximum similarity index (0.60) was observed between Laxmi Nagar & Kopen Heat whereas the minimum (0.29) found between Kopen Heat & Shastry Nagar.

Table 35. Similarity Index of Fishes at nine sites of Great Nicobar Island

	B' Quarry	Joginder Nagar	Laxmi Nagar	Gandhi Nagar	Shastry Nagar	Galathea Mouth	Indira Point	Kopen Heat
Laxman Beach	0.43	0.44	0.54	0.49	0.38	0.51	0.44	0.36
B' Quarry		0.43	0.38	0.31	0.52	0.37	0.41	0.32
Joginder Nagar			0.54	0.40	0.34	0.40	0.59	0.43
Laxmi Nagar				0.54	0.41	0.48	0.57	0.60
Gandhi Nagar					0.33	0.56	0.44	0.46
Shastry Nagar						0.33	0.37	0.29
Galathea Mouth							0.48	0.41
Indira Point								0.51

A total of 54 families of fishes were recorded during study periods. A maximum of 38 species was observed under the family Pomacentridae whereas the minimum of single species was recorded under several families (Table 36). Great Nicobar Island represented 31.36% fishes among the reported families of Andaman & Nicobar Islands.

Table 36. Percentage composition of different families of fishes

Sl. No.	Family	No. of Species in A&N islands	No. of species at Great Nicobar Island	Species %at Great Nicobar Island (%)
1.	Rhinobatidae	4	1	25.00
2.	Dasyatidae	10	1	10.00
3.	Congridae	7	1	14.29
4.	Muraenidae	20	3	15.00
5.	Chanidae	1	1	100.00
6.	Plotosidae	2	1	50.00
7.	Holocentridae	16	5	31.25
8.	Synodontidae	11	3	27.27
9.	Antennariidae	4	1	25.00
10.	Belonidae	5	1	20.00
11.	Pegasidae	2	2	100.00
12.	Aulostomidae	1	1	100.00
13.	Fistularidae	2	1	50.00
14.	Syngnathidae	26	6	23.08
15.	Centriacidae	2	1	50.00
16.	Solenostomidae	2	1	50.00
17.	Scorpaenidae	21	4	19.05
18.	Tetrarogidae	7	1	14.29
19.	Platycephalidae	9	2	22.22
20.	Serranidae	58	23	39.66
21.	Pseodochromidae	6	1	16.67
22.	Plesiopidae	4	1	25.00
23.	Apogonidae	46	18	39.13
24.	Haemulidae	18	6	33.33
25.	Lutjanidae	43	17	39.53
26.	Caesionidae	14	11	78.57
27.	Lethrinidae	22	4	18.18
28.	Nemipteridae	22	3	13.64
29.	Kyphosidae	3	1	33.33
30.	Ephippidae	5	3	60.00
31.	Monodactylidae	1	1	100.00

Table 36. *contd.*

Sl. No.	Family	No. of Species in A&N islands	No. of species at Great Nicobar Island	Species %at Great Nicobar Island (%)
32.	Mullidae	17	8	47.06
33.	Malacanthidae	2	2	100.00
34.	Pomacanthidae	20	9	45.00
35.	Chaetodontidae	41	29	70.73
36.	Carangidae	46	2	4.35
37.	Cirrhitidae	5	2	40.00
38.	Pempheridae	5	2	40.00
39.	Pomacentridae	77	38	49.35
40.	Labridae	64	22	34.38
41.	Scaridae	25	6	24.00
42.	Sphyraenidae	9	2	22.22
43.	Pinguipedidae	7	4	57.14
44.	Bleniidae	58	8	13.79
45.	Tripterygiidae	5	2	40.00
46.	Gobiidae	111	21	18.92
47.	Acanthuridae	32	13	40.63
48.	Zanclidae	1	1	100.00
49.	Siganidae	14	5	35.71
50.	Microdesmidae	7	2	28.57
51.	Monacanthidae	13	1	7.69
52.	Balistidae	19	5	26.32
53.	Ostraciidae	5	1	20.00
54.	Tertraodontidae	24	3	12.50
	Total	1001	314	31.36

DISCUSSION

Great Nicobar Island is the largest island with a total area of 1044 sq. km. in the Nicobar group of Islands and also the southernmost island of India surrounded by the Bay of Bengal and Andaman Sea and separated from Indonesia by the Great Channel. It is a tropical and sub-tropical moist broadleaf forest biome and located in the Indo-Malayan bio-geographic zone. The fascinating biodiversity and endemic attributes of floral and faunal components strengthen the support for declaring these areas as Great

Nicobar Biosphere Reserve which composed of two National Parks such as Campbell Bay National Park and Galathea National Park with a varied zone. The extraordinary biodiversity of this island and its continental shelf regions included this island under world network of Biosphere Reserves of Man and Biosphere Programme (MAB) of United Nations Educational, Scientific and Cultural Organization (UNESCO) during May, 2013 for the need of protection as well as conservation. The present study dealt with the marine faunal communities of Great Nicobar Island with their diversity status. The biodiversity of any area is exclusively dependent and supported by local environmental clues which used to sustain the entire biota with physiological adaptation. The recorded environmental attributes of the marine environment is good enough to carry out stratified niche for several faunal communities or a marine ecosystem as a whole.

Phytoplankton is the primary producers of the marine trophic level and plays a vital role while assessing the health of the marine environment. Each species of phytoplankton has a particular response to different growth rates. A total of 42 species of phytoplankton were identified from Great Nicobar Island whereas maximum 41 species were reported from Laxman Beach with moderate species diversity (2.21) and the minimum only 20 species were recorded from Gandhi Nagar with very low species diversity (0.98). The low phytoplankton diversity in Gandhi Nagar might be due to the high turbidity caused by activities of boats and vessels and the construction work of the new jetty.

The zooplankton is the secondary producers or primary consumers and their productivity is highly responsible for the fishery potential. Zooplankton being secondary producer plays a crucial role in the transfer of energy to higher trophic level in the sea. The continental slope water of Andaman is oligotrophic in nature with low primary productivities. The production of large quantities of detritus, therefore, appears to supplement the inadequacy of these waters. A total of 72 species of zooplankton belonging to 19 groups were recorded from the study area. A maximum number of 59 species were recorded from Kopen Heat whereas the minimum 36 species were recorded from Gandhi Nagar. Maximum (3.842) Shannon-Weaner species diversity was seen at Joginder Nagar area whereas the minimum (3.396) at B' Quarry area. The results of zooplankton study clearly indicated that the copepods were the predominant group as they represented by 28 species followed by foraminiferans which comprised of 17 species. Among the meio-benthos, nematods are more predominant at marine environment of Great Nicobar Island in comparison with others.

The sponges inhabit a wide variety of marine realm from shallow water to the greater depth of the ocean and freshwater systems and are found throughout tropical, temperate and polar region. Most sponges need a hard surface for attachment, but some can also live on soft sediments or surfaces. Few species are able to bore in rocks and shells. Sponges are common on rocky reefs, shipwrecks and coral reefs in a wide range of

temperature and depths. Of the approximately 15,000 sponge species known, most occur in marine environments, only about 1% of the species inhabits freshwater. The largest population occurs where there are strong tidal currents, which bring copious amount of prey organisms. In Indian seas, 451 species of sponges belonging to 3 classes, 17 orders, 65 families and 169 genera have been reported. Tikader *et al.* (1986) gave a comprehensive account of sea shore fauna of Andaman and Nicobar Islands. The recent work by Pattanayak (2006) describes 75 species, 48 genera and 35 families from the Andaman and Nicobar Islands. These include 4 new species records, 18 new locality records and 15 endemic species to the Andaman and Nicobar Islands. In 2009, Pattanayak worked on 20 species of Hexatinellida and 122 species of Demospongiae of Andaman kept as National Zoological Collections of Zoological Survey of India, Kolkata. The present study reports a total of 25 species of sponges belonging to 19 genera and 14 families from Great Nicobar Island during the surveys. Among the nine surveyed sites of Great Nicobar Island, Gandhi Nagar showed maximum number of species composition with the Shannon-Weaner diversity index value of 2.582 which represent moderate state of sponge diversity. A maximum number of 14 species of sponges belonging to 13 genera and 10 families were observed from Gandhi Nagar area whereas the minimum was only 3 at Indira Point area under 3 genera and 3 families. The entire value of species diversity is below the optimum level which denotes a moderate diversity of sponges at Great Nicobar Island.

Coral reefs represent some of the most biologically diverse ecosystem on the earth providing critical habitats to approximately 25% of marine organisms. It offers many values to human society and to the health of the biosphere. Reef protects the shoreline and supports faunal and floral components, recycling nutrients, providing food and shelter and nursery habitat for many other species. Coral reefs support most of the coastal fishery in tropics upon which a large number of people depend of their supply of animal protein. It is estimated that the world production potential in terms of fish catch has been 5-25 tons per sq km of the reef per year. Coral reef fisheries have also been estimated to yield at least 10% of the world's fish catches and 25% of the fish catches in developing countries (Munro, 1996; Roberts *et al.*, 1998). Coral reefs are highly productive marine ecosystem in the world with annual gross production rates in the range of 2000-5000 g/cm² through efficient retention and recycling of nutrients (Mann, 1982). Coral reefs of the world cover an estimated area of 600,000 km² (Smith, 1978; Klepays, 1997).

Studies on the coral reefs in India started in mid 19th century. The earliest coral reef study in the Indian waters was a brief account of the Nicobar Islands by Rink (1847) who pointed out the various adverse effects of siltation in the inshore waters on coral growth and gave an account on deep sea corals of the seas around Andaman. Lt. Col. R.B.S. Sewell was the first Surgeon Naturalist in India to conduct studies on corals of India (Sewell 1922; 1925). Taxonomic studies of Indian corals were restricted to the

pioneering works of Pillai (1967, 1971, 1972), Scheer and Pillai (1974), Reddiah (1977), Pillai and Patel (1988), Pillai and Jasmine (1989) during the late 20th century. The total number of 199 species of scleractinian corals recorded in the eighties remains unchanged since then; only recently, when extensive collections were made in Andamans, nearly 100 new records were found (Venkataraman *et al.*, 2003). In the past few decades many coral reef surveys have been conducted by the scientific team of Zoological Survey of India (Reddiah, 1970a, 1970b, 1977; Venkataraman and Rajan 1998; Jeyabaskaran 1999; Turner *et al.*, 2001; Venkataraman 2003). In spite of many organizations now working on coral reefs in India, non-significant strides in taxonomic investigation of corals have been made since the last compilation by Pillai (1983). Venkataraman *et al.* (2003) were one exception: 42 species were added to the list of coral of the Andaman Nicobar Islands and 13 to the Lakshadweep Islands in the Arabian Sea - though, for the whole of Indian reefs the addition was a meagre 9 nos., since Pillai (1983). Raghuram and Venkataraman (2005) added two more species from Gulf of Mannar and Andaman waters.

Later 2009, again the coral taxonomic investigation started in Andaman and Nicobar region. Rajkumar *et al.* (2010) reported nine corals from South Andaman region; following this Raghuraman *et al.* (2010) recorded 26 scleractinian species from Pongibalu reef, which is located at periphery of Mahatma Gandhi Marine National Park. Later 2010, 55 new hard corals reported by Madhan *et al.* (2010) and Mondal *et al.* (2010a, b, & c,) from Middle and North Andaman reefs. Followed by these reports, Ramakrishna *et al.* (2010) reported 82 species from all over the Andaman and Nicobar reefs. In 2011, Mondal *et al.* (2011a, b, c, d, e, f & g) contribute 44 new records from Rutland, Rani Jhansi Marine National Park, Havelock Island and Neil Island, these report increased the species number to a notable amount.

Zoological Survey of India conducting monitoring studies on scleractinian corals in Great Nicobar Islands. Comprehensive data on scleractinian corals of Andaman & Nicobar Islands on the basis of works made by Pillai and other few workers it is stated that Nicobar Islands are more diverse than the Andaman group (Venkataraman *et al.*, 2003). A total number of 479 species of scleractinian corals under 17 families were recorded from Andaman & Nicobar Islands till now (Tamal *et al.*, 2012). Due to addition of several numbers of newly recorded corals that present database reached upto 503 species of scleractinian corals from Andaman & Nicobar Island. Great Nicobar Island contains 34.19% corals of entire Andaman & Nicobar Islands with a total number of 172 species of corals. The Shannon-Weaner diversity index ranged from 2.839 to 4.448 at of Great Nicobar Island show-cased the coral reef wealth of this island.

Eight species of soft corals under 8 genera and 3 families were identified during the present study period. Among them, maximum of 7 species were observed at Indira Point ($H' = 1.809$) whereas minimum of 2 species were found at B' Quarry and Shastry Nagar

area. Shastry Nagar showed lowest ($H' = 0.693$) species diversity. The study depicts that the soft coral showed a poor species diversity at Great Nicobar Island.

The first account on flatworm Polyclads from India published in 1902 by F.F Laidlaw in which he gave information of about 15 species from Laccadive (Lakshadweep) archipelago. After this the only accounts are given by Sreeraj and Raghunathan (2011 and 2013) from Andaman and Nicobar Islands and Apte and Pitale (2011) from Lakshadweep. 37 species of flatworm under the order Polycladida are known till now in Indian scenario. Out of these 22 species are recorded from Lakshadweep and 12 are recorded from Andaman and Nicobar Islands while 3 species are common from both group of islands. Present study implies a total number of 7 species of polyclads under 2 genera and 1 family where the maximum numbers of 6 species were reported from B' Quarry area whereas the minimum 2 species were reported from Joginder Nagar, Laxmi Nagar and Kopen Heat. Shannon-Weaner Diversity indices reveals that B' Quarry showed highest degree of diversity with 1.561 whereas Joginder Nagar showed the lowest 0.636. The values of the diversity indices are very low from the optimum level which depicts the low level of polyclad diversity at Great Nicobar Island.

Crustacean diversity of Andaman and Nicobar Islands is well studied during 20th century by many researchers. Coral reefs inhabit several commonly important crustacean fauna. In 1865, Heller described 14 species of hermit crabs from Nicobar Islands. Alcock (1905) further described 14 species and 5 new varieties/species of hermit crabs. Reddy and Ramakrishna (1972) found the occurrence of 20 species followed by Tikader *et al.* (1986) reported 37 species lead to a total of 40 species of hermit crabs from Andaman and Nicobar Islands. Species composition of brachyuran crabs of Andaman & Nicobar Islands has been consolidated as 220 species through the reports of Sakai (1976), Kathirvel (1983), and Tikader *et al.* (1986). Present study reflects a total of 78 species of crabs under 31 genera and 15 families with a maximum number of 68 species under 30 genera and 15 families ($H' = 4.102$) from Shastry Nagar whereas the minimum number of 27 species under 18 genera and 13 families ($H' = 3.197$) were observed from Laxmi Nagar. The values depict the high degree of species assemblage at several areas of Great Nicobar Island. Great Nicobar Island represented 54% crab species of Andaman & Nicobar Islands among the recorded 15 families. Coral reef environment of Great Nicobar Island is a suitable habitat to support the crab diversity and distribution.

Shrimps are the most important crustaceans with high commercial value. The value of the shrimps has been raised in a virtual level and ranked as top one. Taxonomical studies of Indian penaeid shrimps have been brought to light by the pioneering works of Milne Edwards (1834), Miers (1884), Bate (1888), Wood- Mason (1891), Wood-Mason, Alcock (1891a, b), Alcock and Anderson (1894, 1899a, b), Alcock and Macardle (1901), Alcock (1901, 1905, 1906), Nobili (1903), Alcock *et al.* (1907), Kemp (1910,

1915, 1917), De Man (1908, 1911, 1920), Kemp and Sewell (1912), Balss (1925) and Sewell (1934). A total of 30 species of shrimps under 13 genera and 9 families were identified from the present study areas of Great Nicobar Island. Among them, maximum 17 species under 11 genera and 8 families were seen at B' Quarry ($H'=2.724$) whereas the minimum of 5 species under 4 genera and 4 families were seen at Indira Point ($H'=1.56$). Great Nicobar Island represented 41% of Shrimps of Andaman & Nicobar Islands among the recorded 9 families. The diversity of shrimps reveals that the Great Nicobar Island showed moderate species aggregation content.

Among the marine edible crustaceans, lobsters rank second by virtue of their delicacy and higher price they command in the export trade. The taxonomical records of commercially important lobsters were carried out by Heller (1865), Henderson (1893), Thurston (1895), Alcock and Anderson (1894), Alcock (1901, 1906), Nobili (1903), Borradaile (1906), Lloyd (1907), Sewell (1913), De Man (1916), Gravely (1927), Patil (1953), John and Kurian (1959), Satyanarayana (1961), Chhapgar and Deshmukh (1961 & 1964), George and Rao (1965, 1967), George and George (1967), Radhakrishna and Ganapati (1969), Nair *et al.* (1973), Hossain (1975), Meiyappan and Kathirvel (1978), Thomas (1979), Parulekar (1981), Shanmugam and Kathirvel (1983), Mustafa (1990), Radhakrishnan *et al.* (1995), Goswamy (1992), Kathirvel and Nair (2002) and Kathirvel *et al.* (2003, 2007). Four species of lobsters were recorded during the present study at Great Nicobar Island. Those species belong to a single genus and family. A maximum number of 4 species were observed from B' Quarry and Shastry Nagar whereas the minimum of 2 species were found at Joginder Nagar, Laxmi Nagar and Indira Point.

Molluscs are one of the most important components of marine biodiversity of India on the east and west coasts and the islands of Andaman & Nicobar and Lakshadweep. Five major classes, namely Polyplacophora, Gastropoda, Scaphopoda, Bivalvia and Cephalopoda are represented in India. Against a total of 586 families of molluscs in the world, an estimated 279 families occur in the Indian region. A total number of 139 species of molluscs under 63 genera, 45 families, 11 orders and 4 classes were reported from Great Nicobar Island. B' Quarry showed maximum of 118 species with Shannon-Weaner Diversity Index of 4.251 whereas minimum of 36 species were observed at Laxmi Nagar with 3.256 species diversity index. Great Nicobar Island represented a total of 11.85% molluscs of Andaman & Nicobar Islands among the 11 orders out of 20 orders were reported from Andaman & Nicobar Islands.

The pioneer work on opisthobranchs was initiated in India during 1880s. The first report on Opisthobranchs from these islands was published by Eliot (1910), which dealt a collection of Opisthobranchs made by Annandale. Later on taxonomy and ecological approaches of opisthobranchs in Andaman & Nicobar Islands were made by Raghunathan *et al.* (2010), Ramakrishna *et al.* (2010), and Sreeraj *et al.* (2010). A total of 25 species

of Opisthobranchs under 17 genera and 10 families were reported from Great Nicobar Island during the study period. Maximum of 12 species under 8 genera and 5 families were reported from Gandhi Nagar with a moderate value (2.399) of Shannon-Weaner Diversity Index whereas the minimum 1 species was recorded from Laxmi Nagar and Galathea Mouth areas respectively. Great Nicobar Island represented a total of 43.86% Opisthobranchs of Andaman & Nicobar Islands among the 12 families of which, two families such as Facelenididae and Discodorididae were exclusively recorded from Great Nicobar Island.

The phylum echinoderms comprised of 5 classes such as echinoids, crinoids, asteroids, ophiuroids and holothuroids. All the five classes of echinoderms represented from Andaman & Nicobar Islands. Bell (1887) for the first time listed the echinoderms from the Andaman and since then many workers reported echinoderms from these Islands and added several species to the echinoderm fauna. In 1983, James dealt with sea cucumber and sea urchin resources of the Andaman and Nicobar Islands gave a list of echinoderms known from these Islands. In addition, there have been several revisionary works effecting changes in the nomenclature and status of several taxa. Shastri (2005) attempted to compile all the available published literature on echinoderms of Andaman and Nicobar Islands as well as the materials in the National Zoological Collection of Zoological Survey of India at Kolkata and Port Blair. It is resulted with a total of 425 species of echinoderms from these Islands while total number of reported echinoderms from India 649 (Shastri, 2007). A total of 49 species of echinoderms under 36 genera and 19 families were recorded from Great Nicobar Island with maximum number of 38 species from Laxman Beach and Indira Point and minimum of 22 species were identified at B' Quarry area. The species maximum diversity (H') is 3.267 and the minimum 2.703 reported for Great Nicobar Island during the study period. Echinoderms at Great Nicobar Island reported through present study were 11.52% total echinoderms species of Andaman and Nicobar Islands.

Studies on fish taxonomy were made at Andaman & Nicobar by various authors (Blyth, 1846; Day, 1870, 1875-78, 1888; Annandale and Hora, 1925; Hora, 1925; Duncker, 1925; Mukerjee, 1935; Herre, 1939, 1940; Koumans, 1940, 1953; Misra, 1950). Weber and De Beaufort (1913-1936), De Beaufort (1940), De Beaufort and Chapman (1951) contributed notable works for taxonomy and distributional records of fishes of Andaman and Nicobar. Here (1941) recorded a list of 490 species of fishes for the first time. Later on, addition of new species and new records of fishes have increased the species list by many ichthyologists including Kalauswitz and Eild Eibesfeld (1959), Kaluswitz (1963), Jones *et al.* (1960), Silas and Dawson (1961), Silas and Toor (1961), Yazdani (1963) and Luther (1972). Rangarajan (1969, 1972), Menon and Rama Rao (1972), Menon and Talwar (1972, 1973), Sen (1975), Menon and Chatterjee (1974); Eschmeyer and Dor (1978); Talwar *et al.* (1982); Mehta *et al.* (1989); Mehta and Kamla Devi (1990)

also contributed towards the taxonomy of fishes from Andaman and Nicobar Islands. Talwar (1990) documented a comprehensive list of 724 species of fishes from all the aquatic ecosystems of these islands, followed by a supplementary list by Kamla Devi (1991) containing 71 species of fishes. Taxonomical works also made by Kamla Devi and Rajan (1991), Misra and Krishnan (1992), Rao *et al.* (1992a,1992b), Dhandapani and Misra (1993), Rajan (2001, 2002, 2003), Rajan *et al.* (1992a,1992b,1993), Kamla Devi *et al.* (1993, 1995), Kamla Devi and Rao (1997, 2003a,2003b, 2007), Rao *et al.* (1992, 1994, 1993a,1993b, 1997, 2000), Rao (1995, 2003), Rao and Kamla Devi (1995, 1997a, 1997b, 1998, 2004), Soundararajan and Dam Roy (2004), Remadevi *et al.* (2005) and Rajaram *et al.* (2007) on the fishes of Andaman & Nicobar Islands and documented 300 species to the ichthyofauna of the Archipelago which enriched the list of fishes to more than 1300 species. Rao (2009) consolidated and revised checklist and listed 1369 species under 586 genera belonging to 175 families recorded from Andaman and Nicobar Islands. The present study reported a total number of 314 species under 144 genera, 54 families, 13 orders and 2 classes from Great Nicobar Island where a maximum number of 251 species were reported from Laxmi Nagar ($H'=4.897$) and minimum 83 species observed from Shastri Nagar ($H'=3.833$) area.

The diversity of various marine faunal components indicated that Great Nicobar Island is one of the biologically diverse areas in Andaman and Nicobar Islands. However, no data on pre-tsunami cum earthquake (December 2004) on the marine faunal diversity of Great Nicobar Island is available to discuss the present status of the diversity. It is also observed that poaching of seacucumbers and precious molluscs from this island is one the major threats posed by the poachers from neighbouring countries. The findings of the present will serve as a baseline data for long term mentoring work as there was no earlier data on marine faunal component of Great Nicobar Island. The data obtained from this study will be useful for conservation and management of biological resources of this island.

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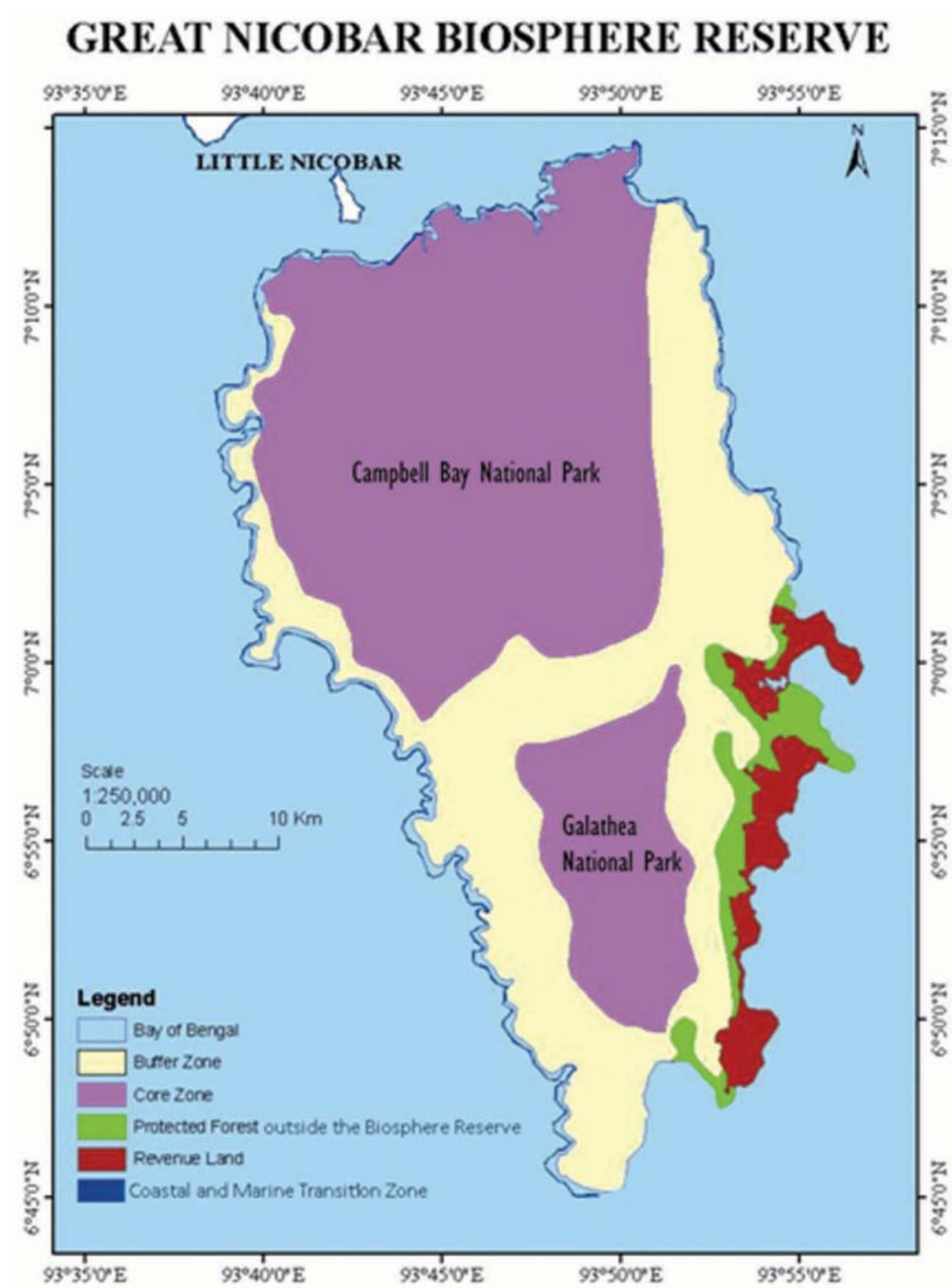


Fig. 2. Map showing the zonation Great Niocbar Biospher Reserve

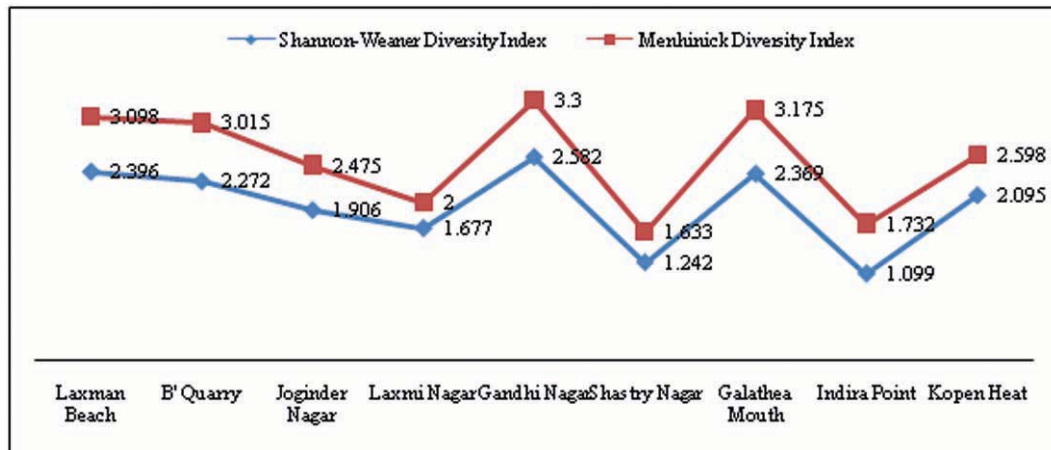


Fig. 3. Shannon-Weaver and Menhinick Diversity Indices of Sponges at Great Nicobar Island

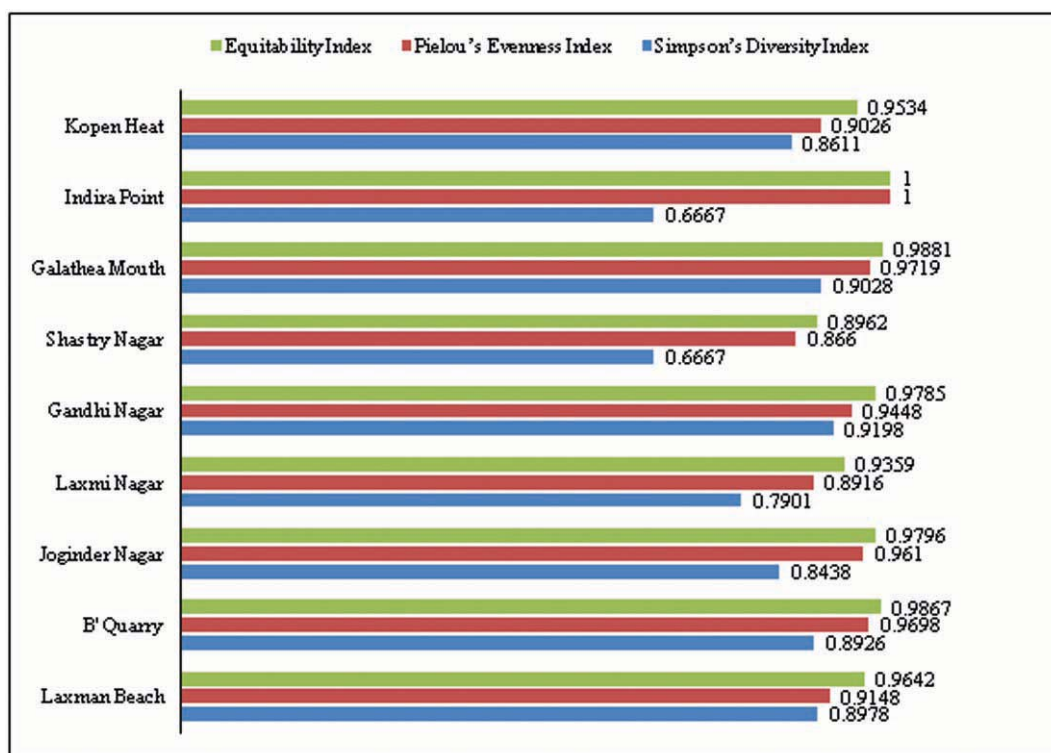


Fig. 4. Equitability, Pielou's Evenness and Simpson's Diversity Indices of Sponges at Great Nicobar Island

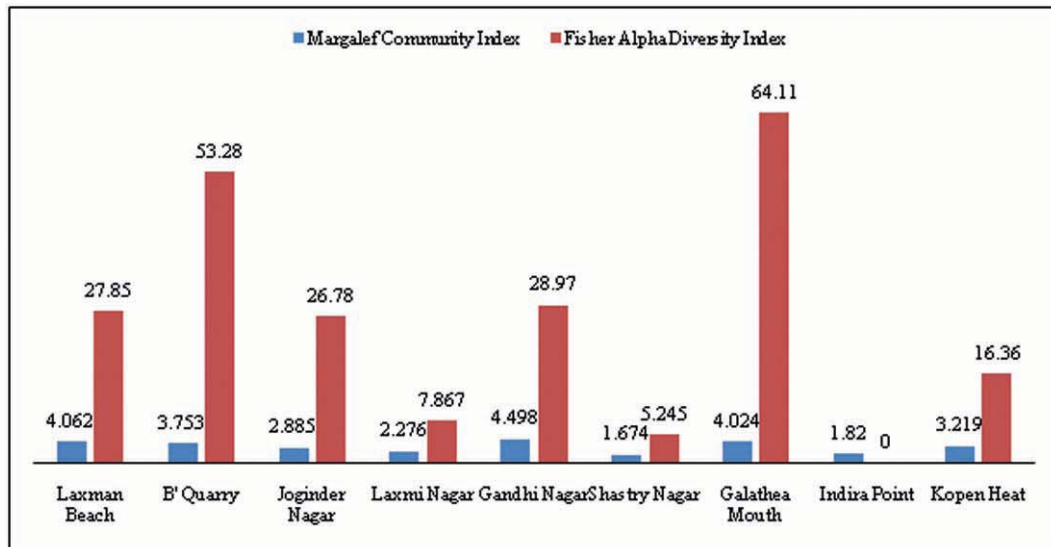


Fig. 5. Margalef Community and Fisher Alpha Diversity Indices of Sponges of Great Nicobar Island

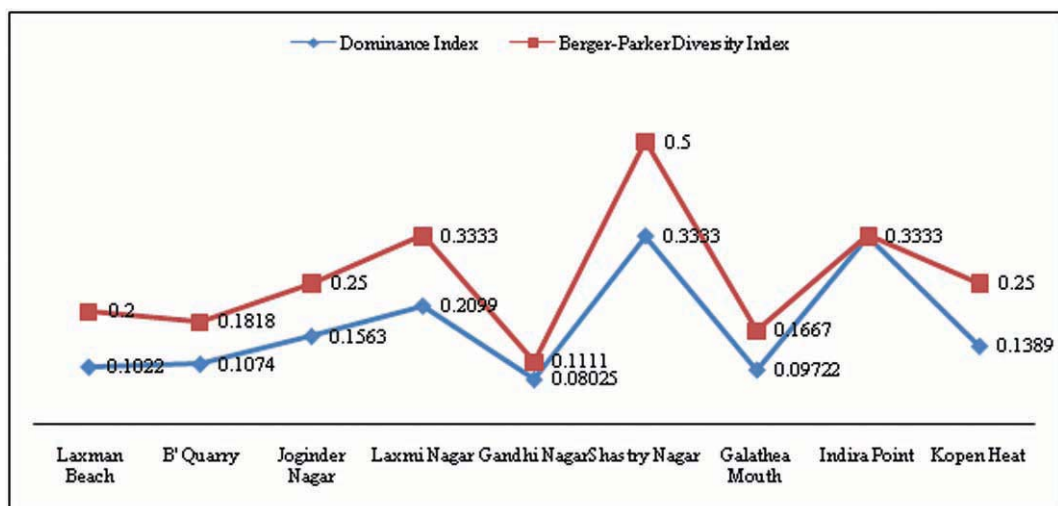


Fig. 6. Dominance and Berger-Parker Diversity Indices of Sponges of Great Nicobar Island

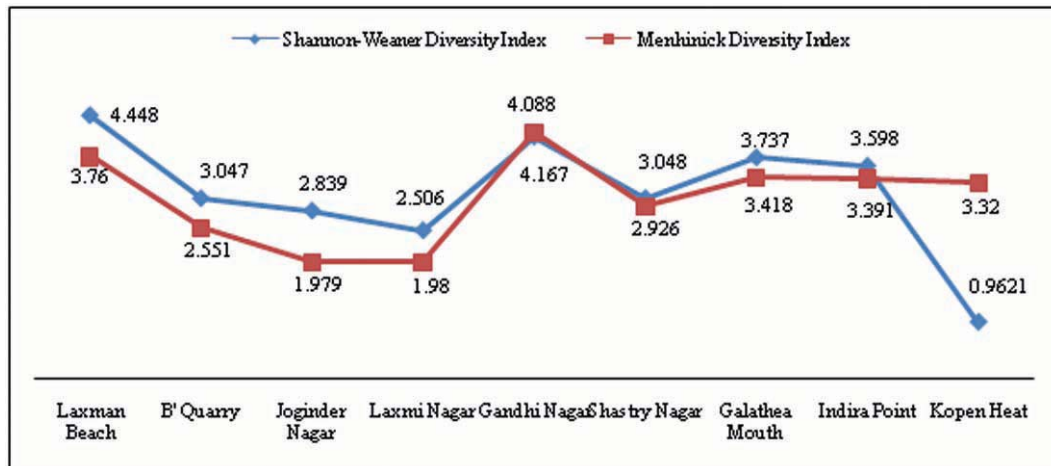


Fig. 7. Shannon-Weaver and Menhinick Diversity Indices of Scleractinian corals of Great Nicobar Island



Fig. 8. Equitability, Pielou's Evenness and Simpson's Diversity Indices of scleractinian corals at Great Nicobar Island

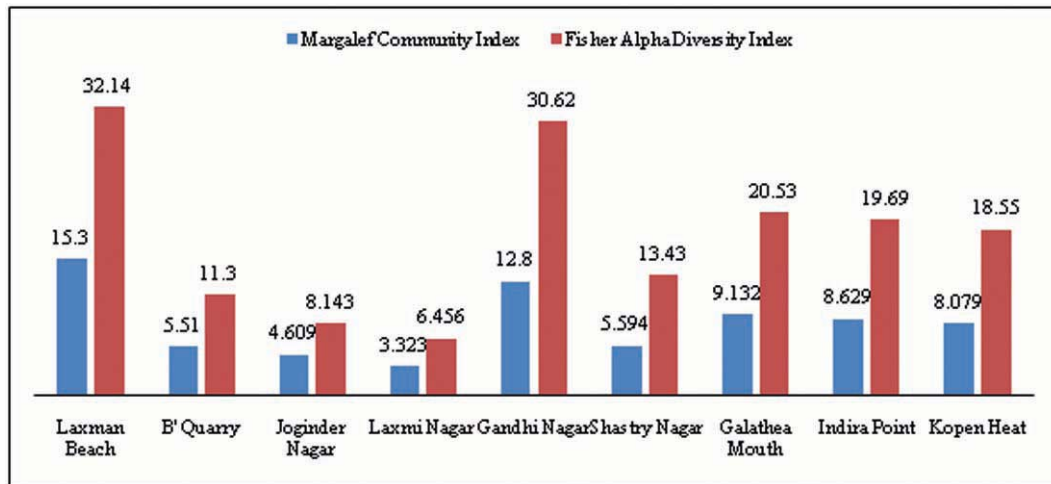


Fig. 9: Margalef Community and Fisher Alpha Diversity Indices of scleractinian corals of Great Nicobar Island

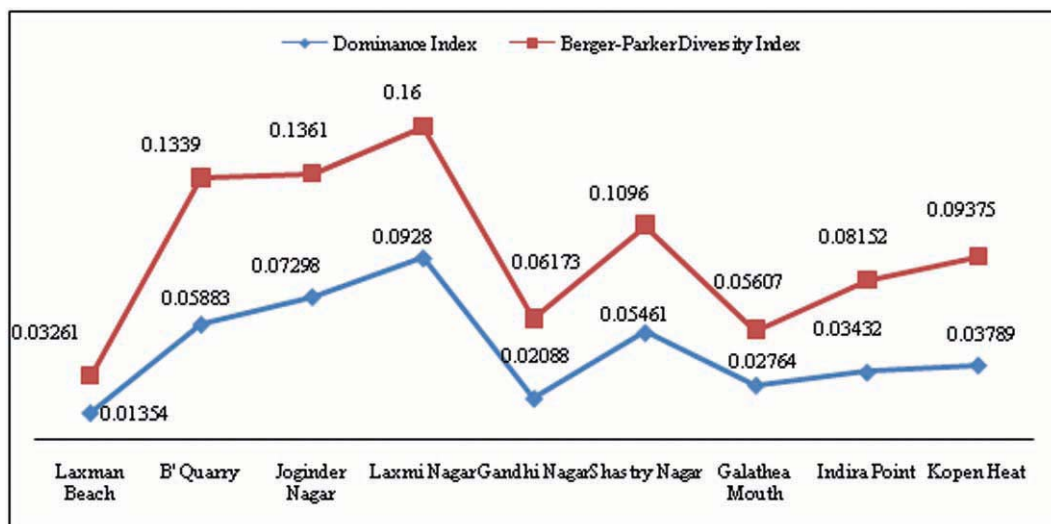


Fig. 10. Dominance and Berger-Parker Diversity Indices of scleractinian corals of Great Nicobar Island

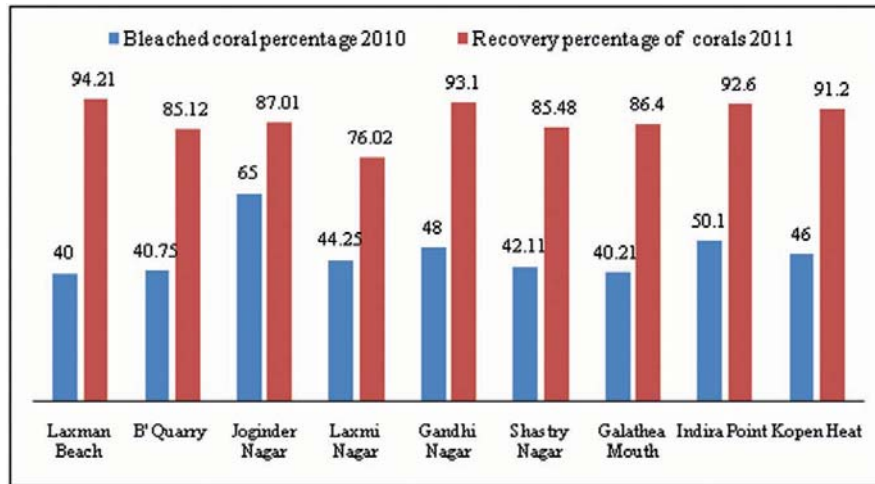


Fig. 11. Percent bleaching and recovery of corals at Great Nicobar Island

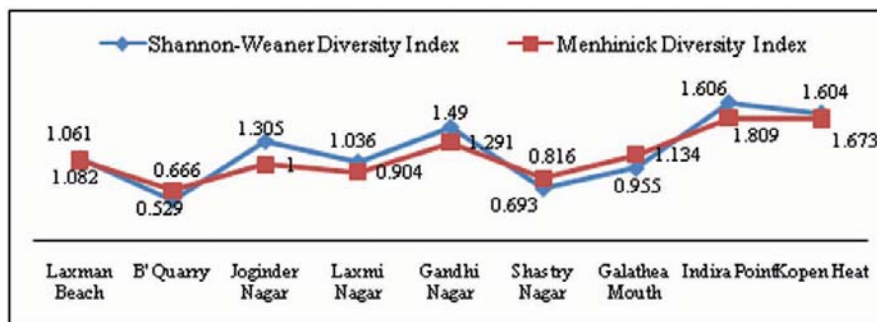


Fig. 12. Shannon-Weaver and Menhinick Diversity Indices of soft corals of Great Nicobar Island

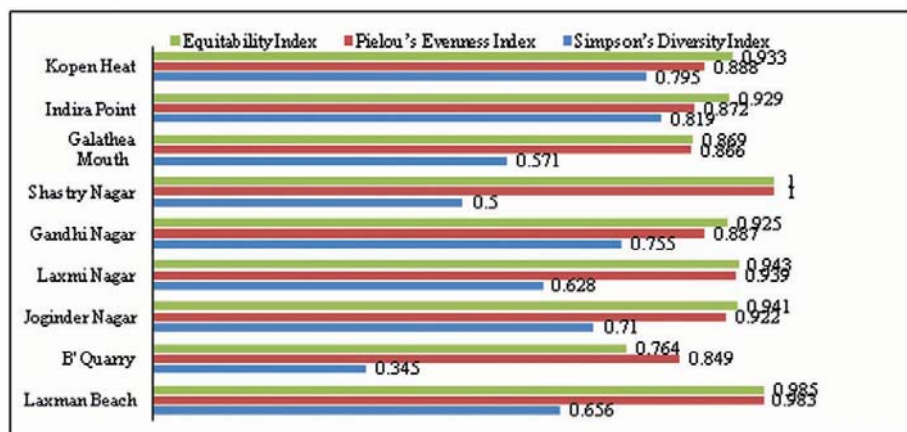


Fig. 13. Equitability, Pielou's Evenness and Simpson's Diversity Indices of soft corals at Great Nicobar Island

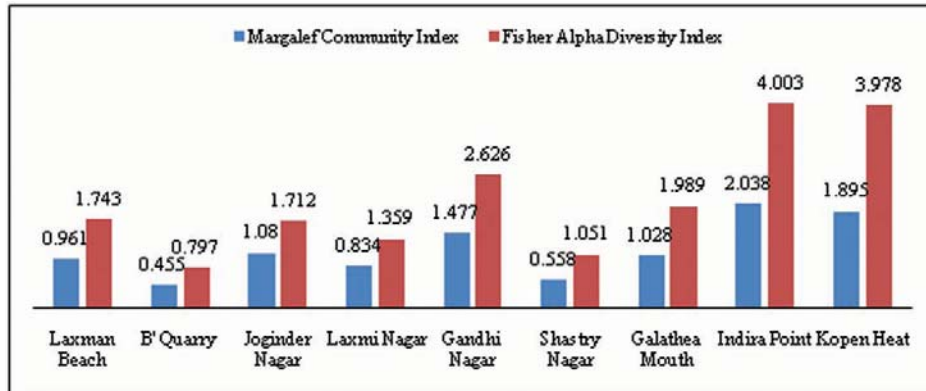


Fig. 14. Margalef Community and Fisher Alpha Diversity Indices of soft corals of Great Nicobar Island

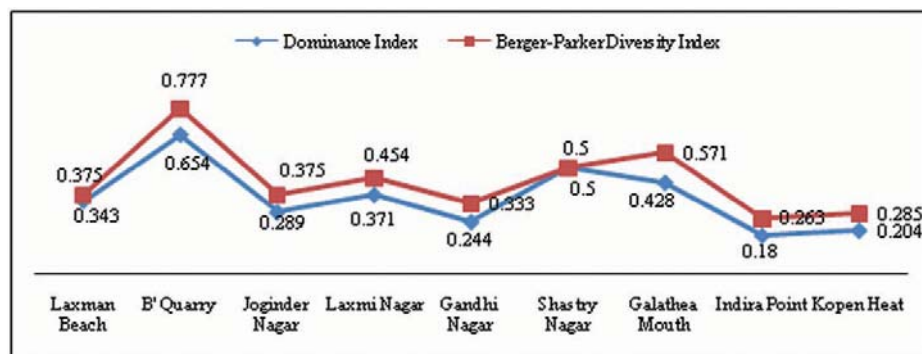


Fig. 15. Dominance and Berger-Parker Diversity Indices of Polyclads of Great Nicobar Island

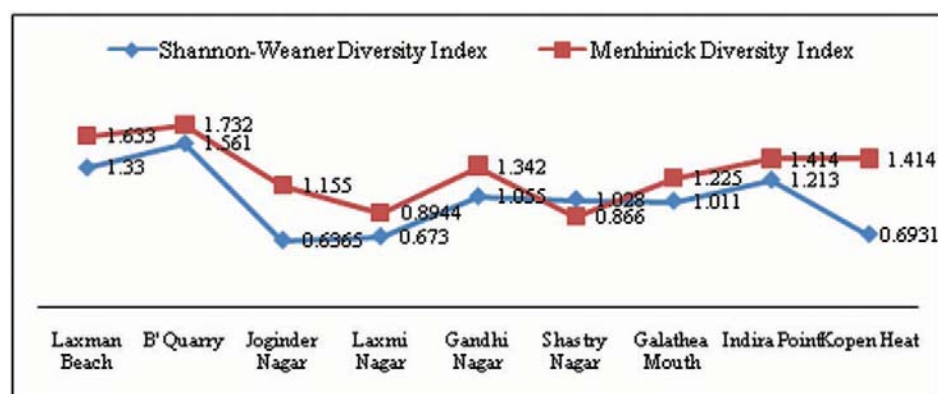


Fig. 16. Shannon-Weaver and Menhinick Diversity Indices of Polyclads of Great Nicobar Island

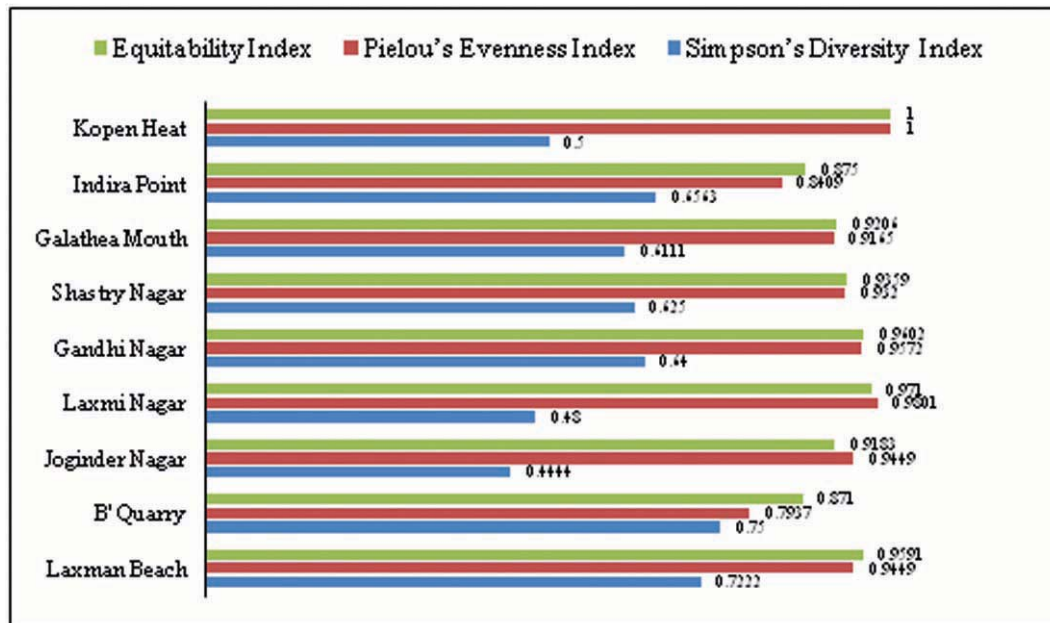


Fig. 17. Equitability, Pielou's Evenness and Simpson's Diversity Indices of Polyclads at Great Nicobar Island

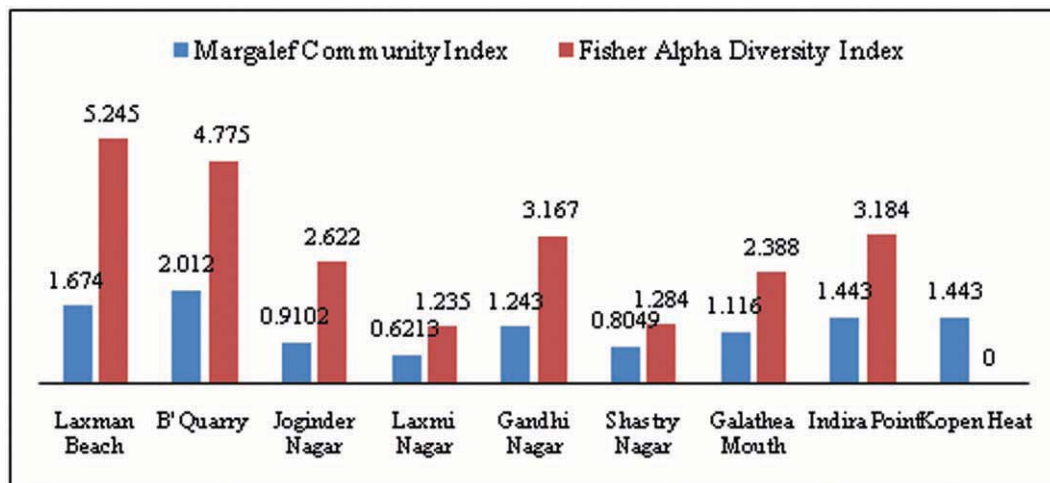


Fig. 18. Margalef Community and Fisher Alpha Diversity Indices of Polyclads of Great Nicobar Island

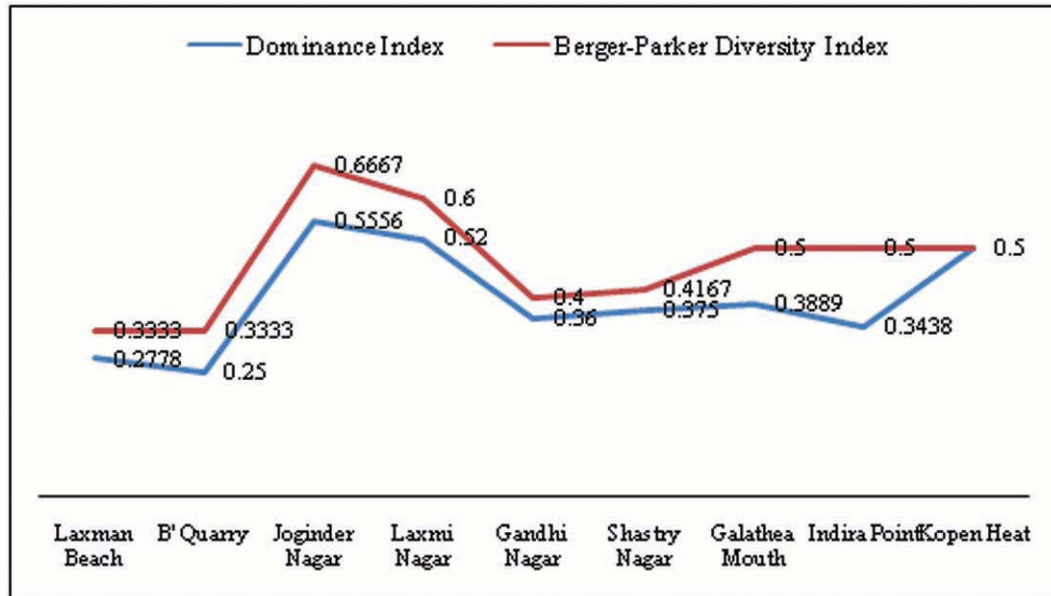


Fig. 19. Dominance and Berger-Parker Diversity Indices of Polyclads of Great Nicobar Island

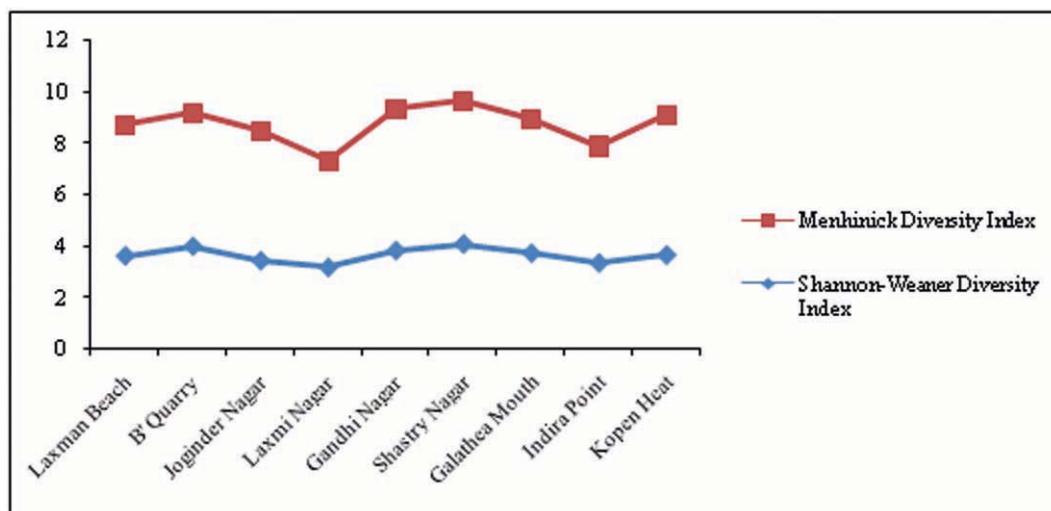


Fig. 20. Shannon-Weaver and Menhinick Diversity Indices of Crabs of Great Nicobar Island

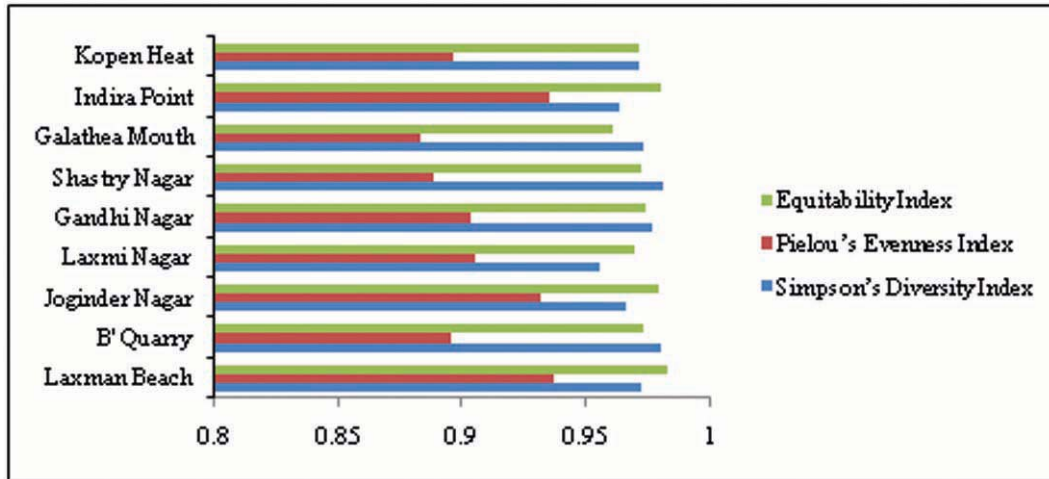


Fig. 21. Equitability, Pielou's Evenness and Simpson's Diversity Indices of Crabs at Great Nicobar Island

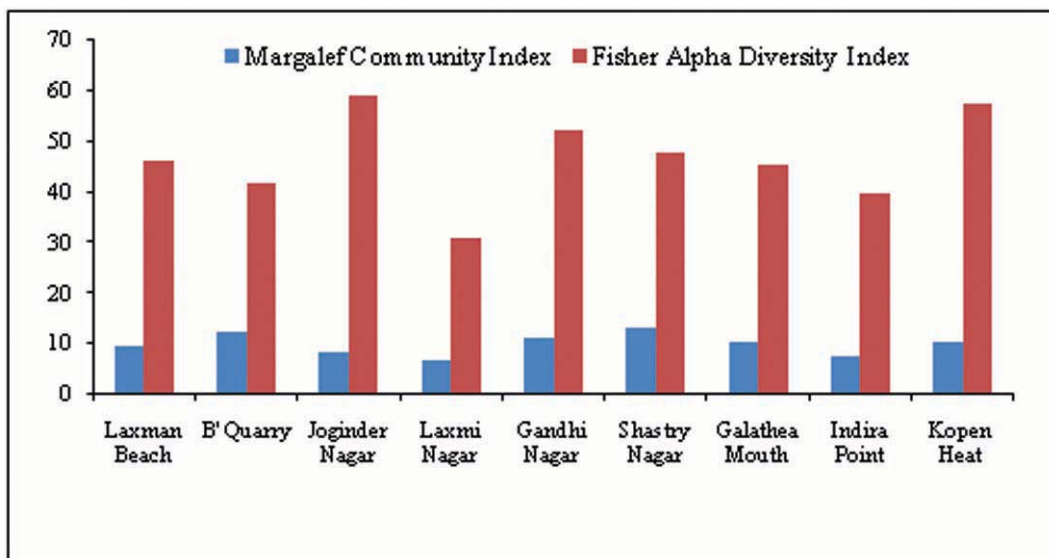


Fig. 22. Margalef Community and Fisher Alpha Diversity Indices of Crabs of Great Nicobar Island

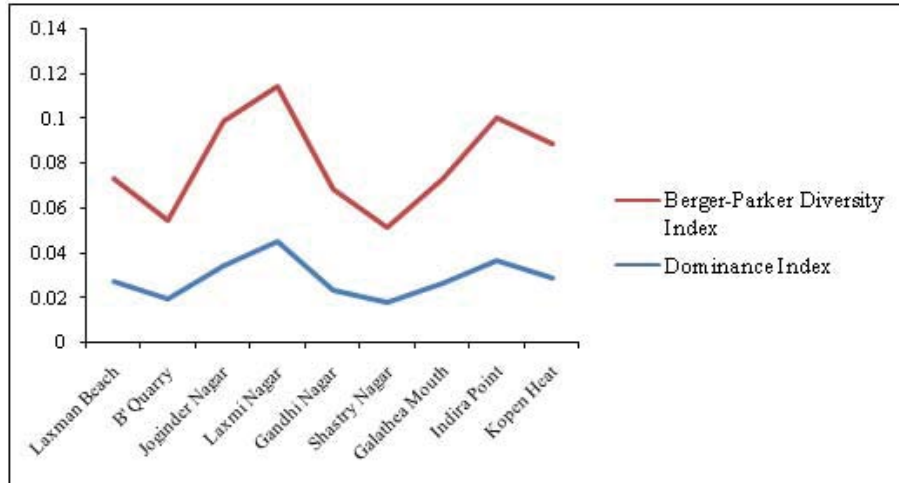


Fig. 23. Dominance and Berger-Parkar Diversity Indices of Crabs of Great Nicobar Island

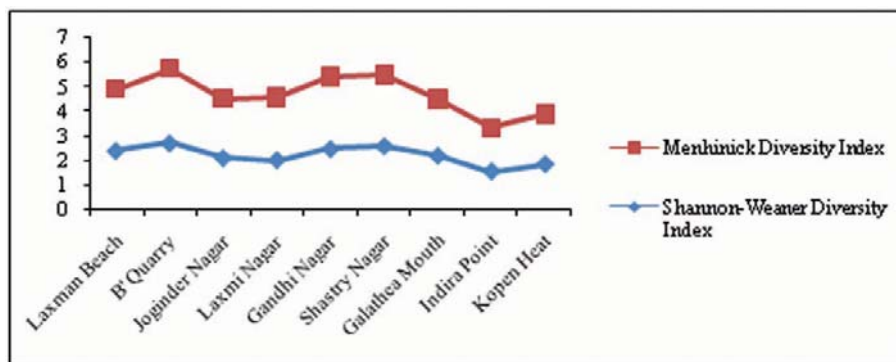


Fig. 24. Shannon-Weaver and Menhinick Diversity Indices of Shrimps of Great Nicobar Island

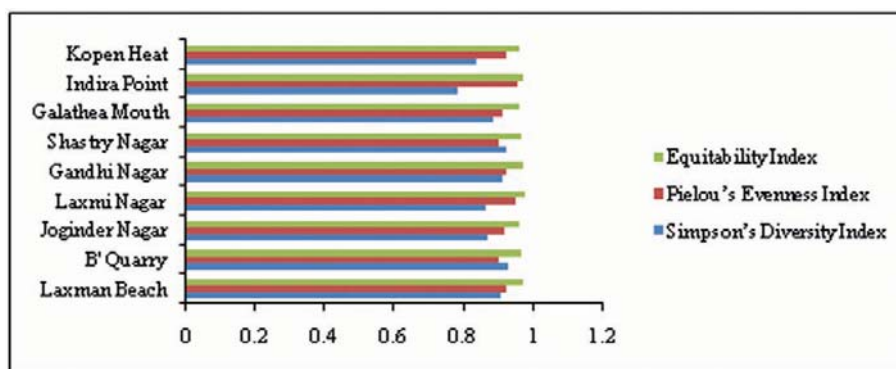


Fig. 25. Equitability, Pielou's Evenness and Simpson's Diversity Indices of Shrimps at Great Nicobar Island

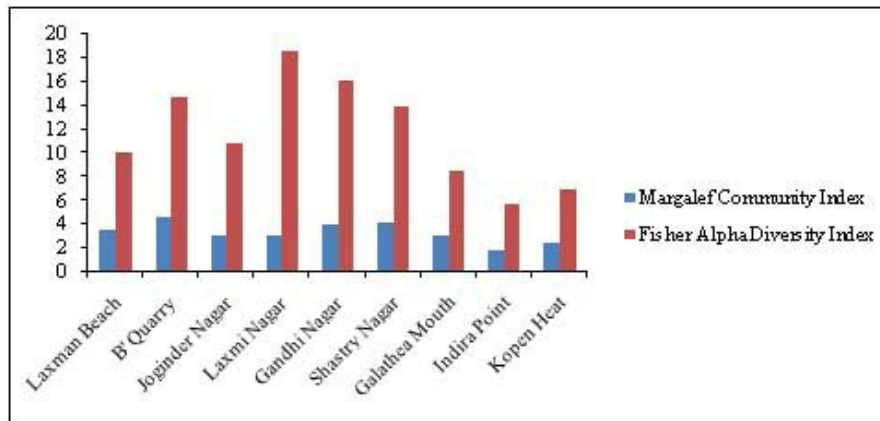


Fig. 26. Margalef Community and Fisher Alpha Diversity Indices of Shrimps of Great Nicobar Island

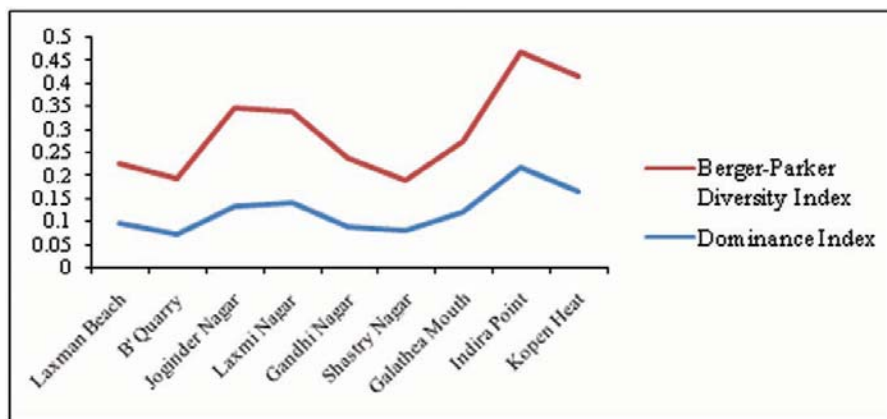


Fig. 27. Dominance and Berger-Parker Diversity Indices of Shrimps of Great Nicobar Island

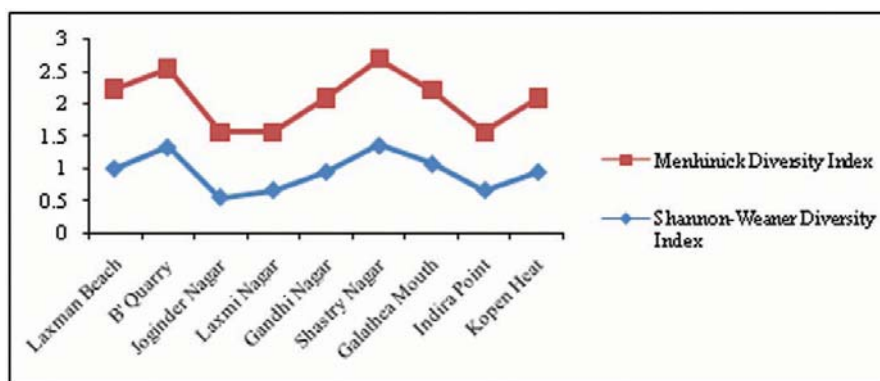


Fig. 28. Shannon-Weaver and Menhinick Diversity Indices of Lobsters of Great Nicobar Island

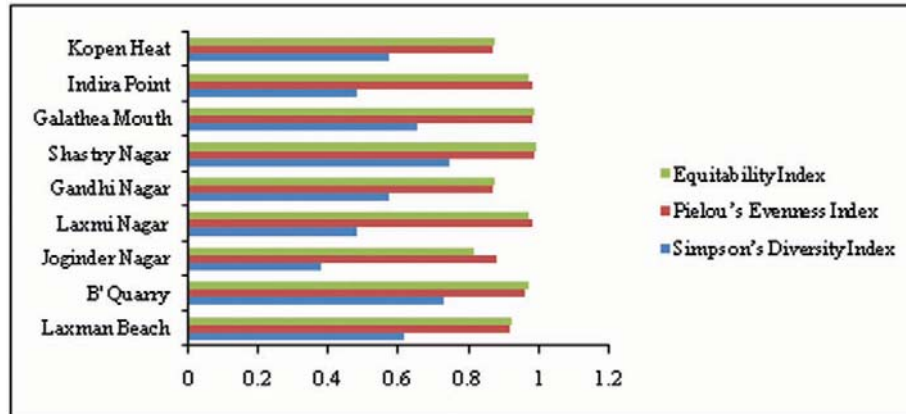


Fig. 29. Equitability, Pielou's Evenness and Simpson's Diversity Indices of lobsters at Great Nicobar Island

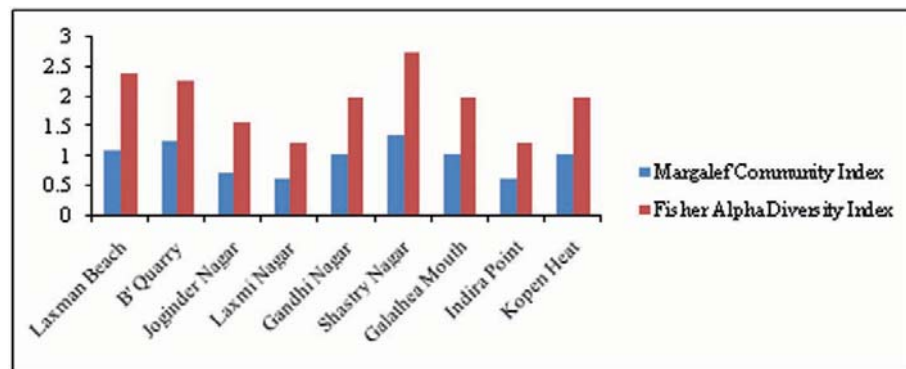


Fig. 30. Margalef Community and Fisher Alpha Diversity Indices of lobsters of Great Nicobar Island

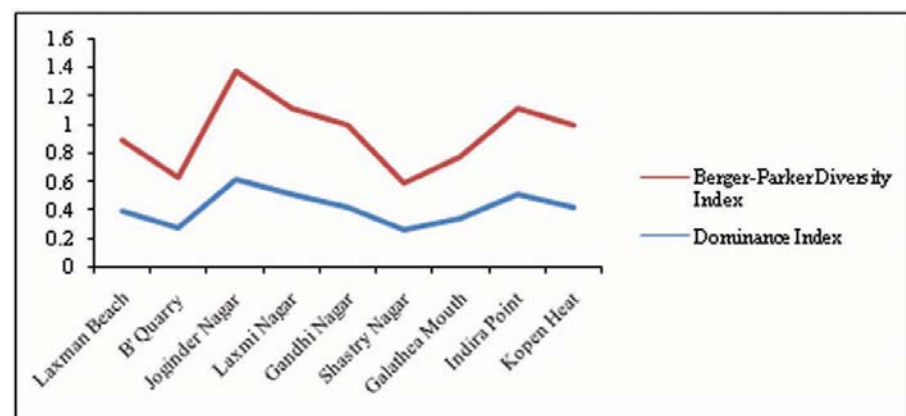


Fig. 31. Dominance and Berger-Parker Diversity Indices of lobsters of Great Nicobar Island

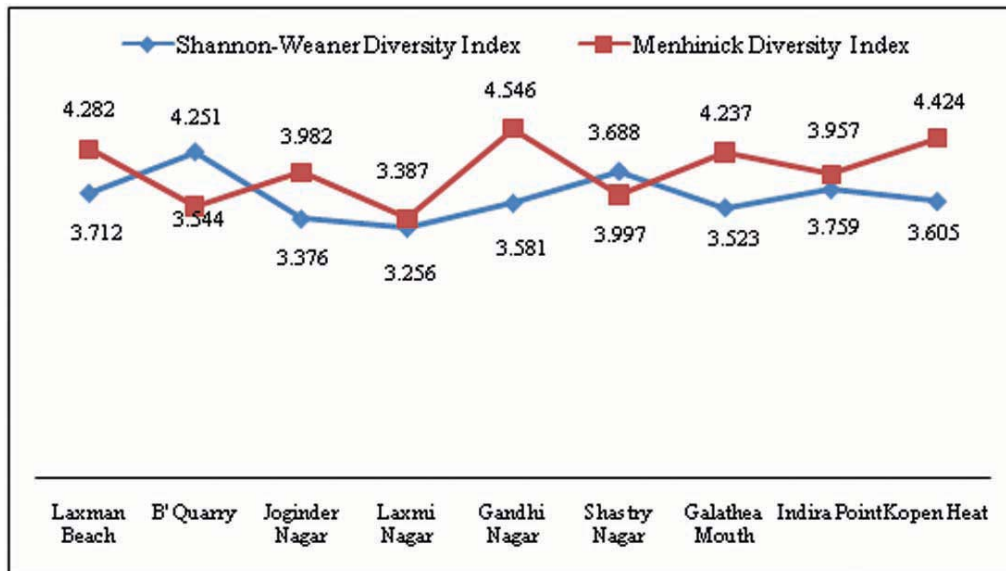


Fig. 32. Shannon-Weaner and Menhinick Diversity Index of Molluscs of Great Nicobar Island

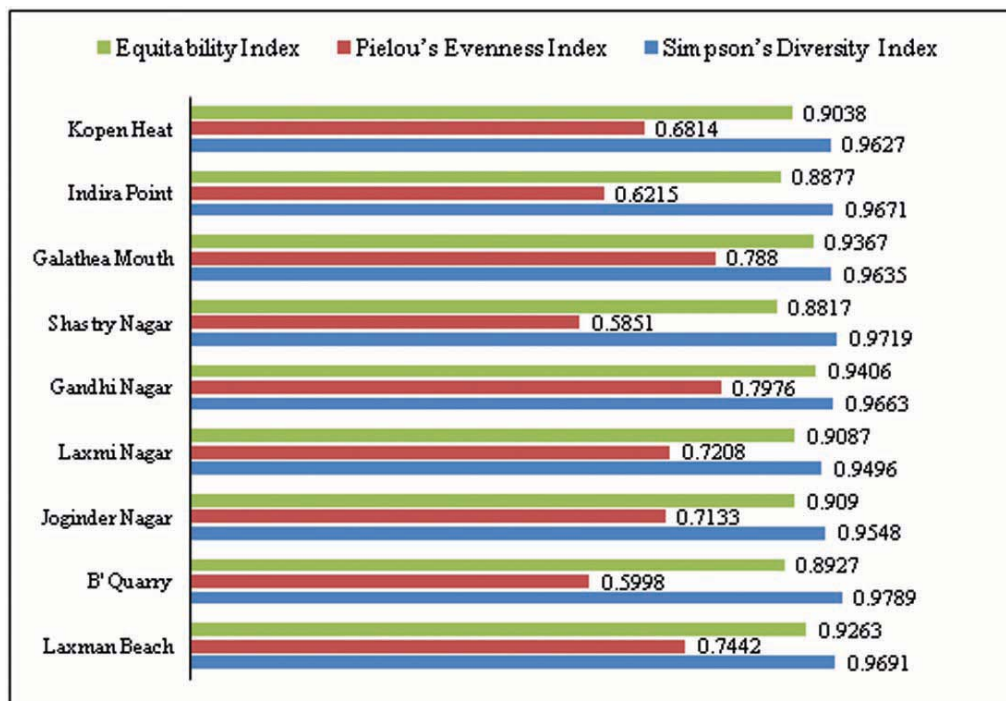


Fig. 33. Equitability, Pielou's Evenness and Simpson's Diversity Indices of Molluscs at Great Nicobar Island

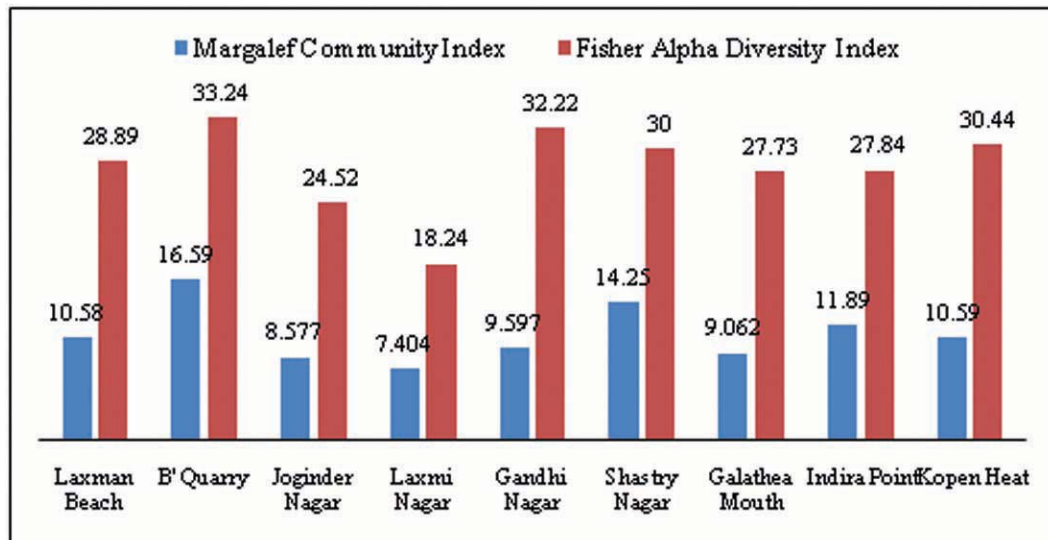


Fig. 34. Margalef Community and Fisher Alpha Diversity Indices of Molluscs of Great Nicobar Island

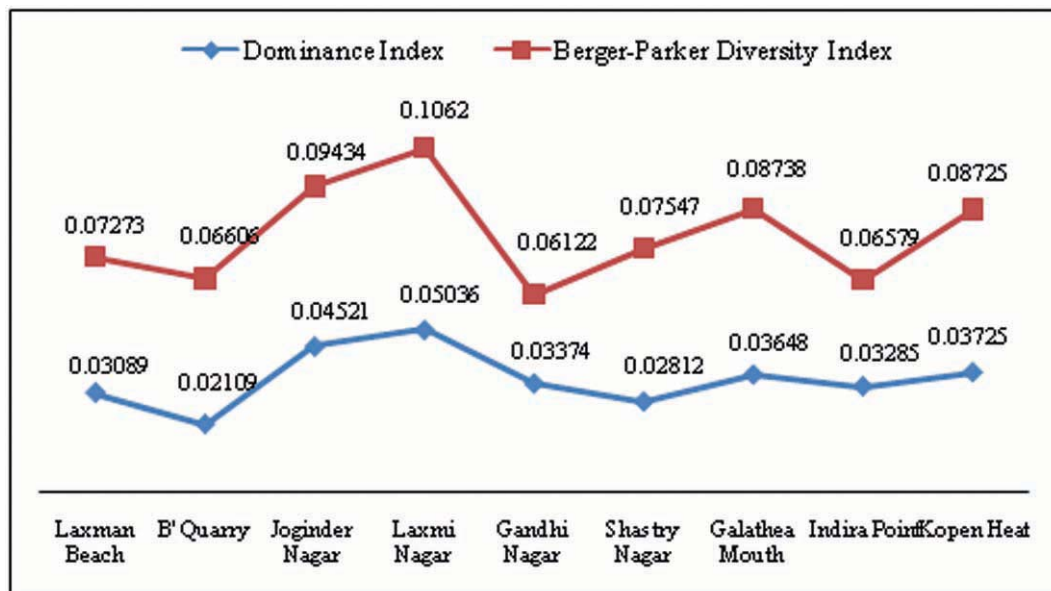


Fig. 35. Dominance and Berger-Parker Diversity Indices of molluscs of Great Nicobar Island

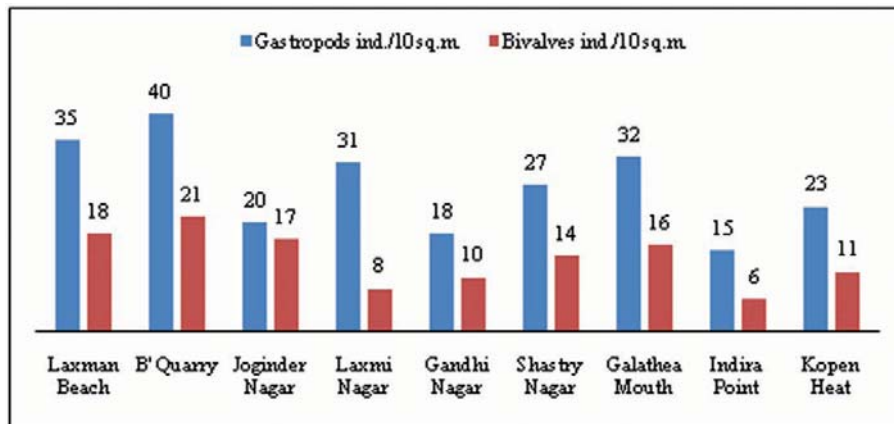


Fig. 36. Density of Molluscs at Great Nicobar Island

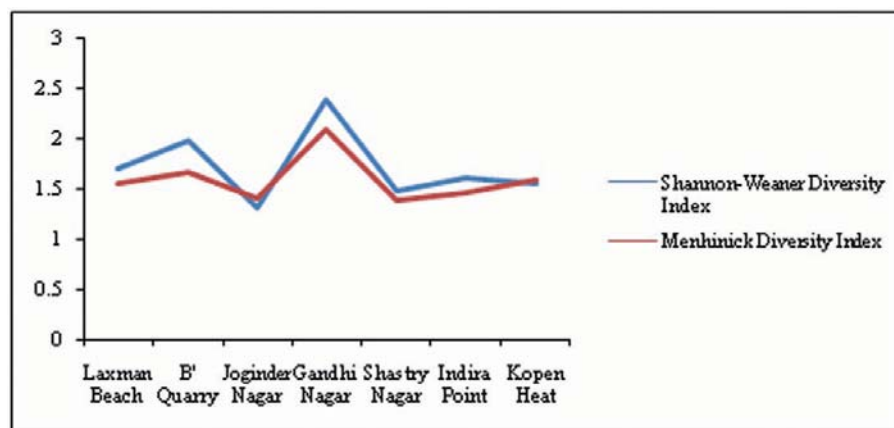


Fig. 37. Shannon-Weaver and Menhinick Diversity Indices of Opisthobranchs of Great Nicobar Island

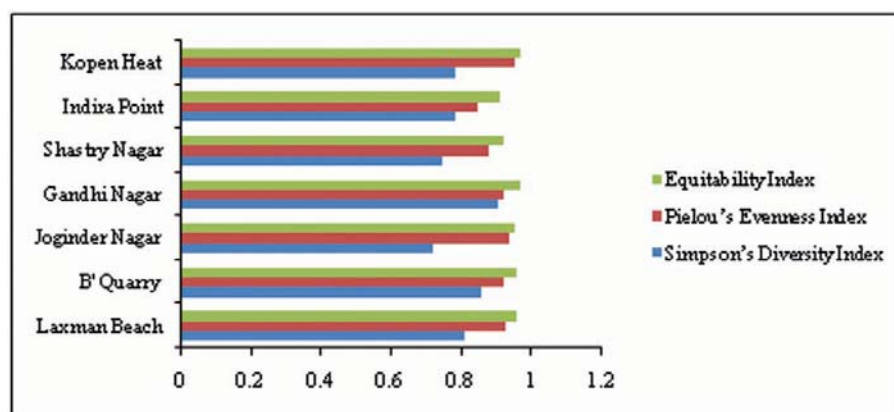


Fig. 38. Equitability, Pielou's Evenness and Simpson's Diversity Indices of Opisthobranchs at Great Nicobar Island

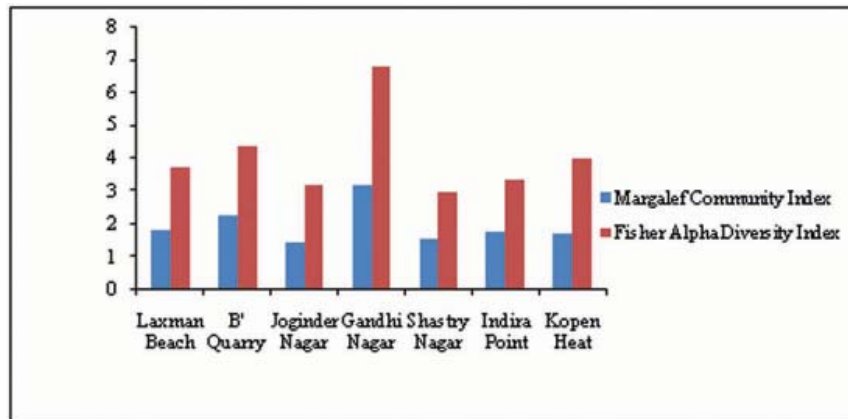


Fig. 39. Margalef Community and Fisher Alpha Diversity Indices of Opisthobranchs of Great Nicobar Island

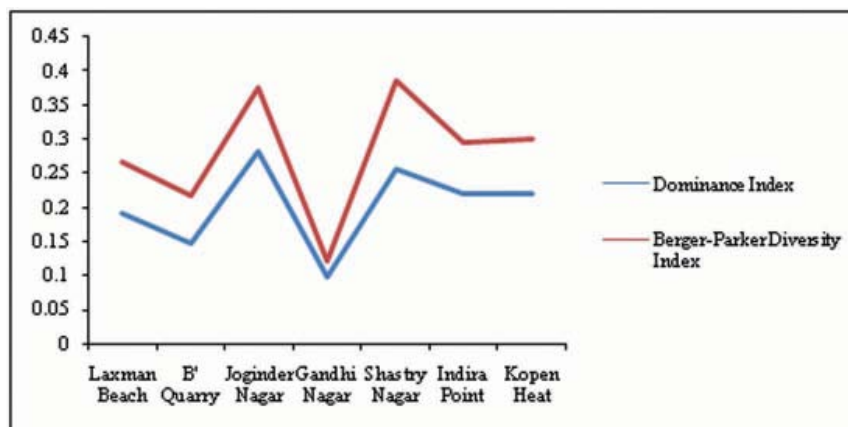


Fig. 40. Dominance and Berger-Parker Diversity Indices of Opisthobranchs of Great Nicobar Island

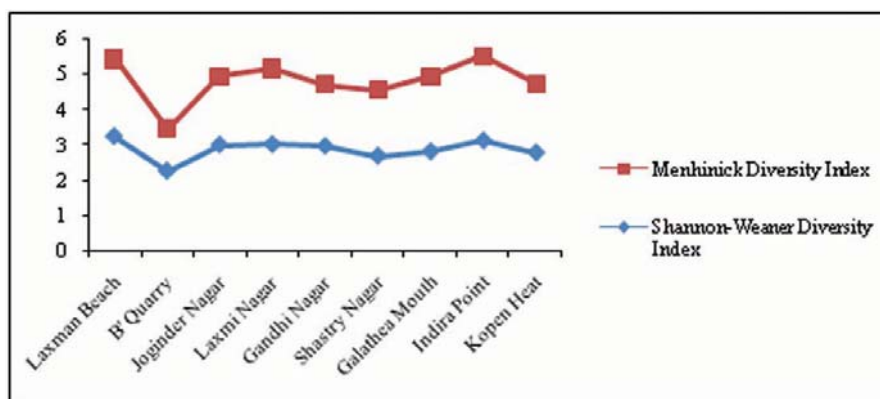


Fig. 41. Shannon-Weaver and Menhinick Diversity Index of Echinoderms of Great Nicobar Island

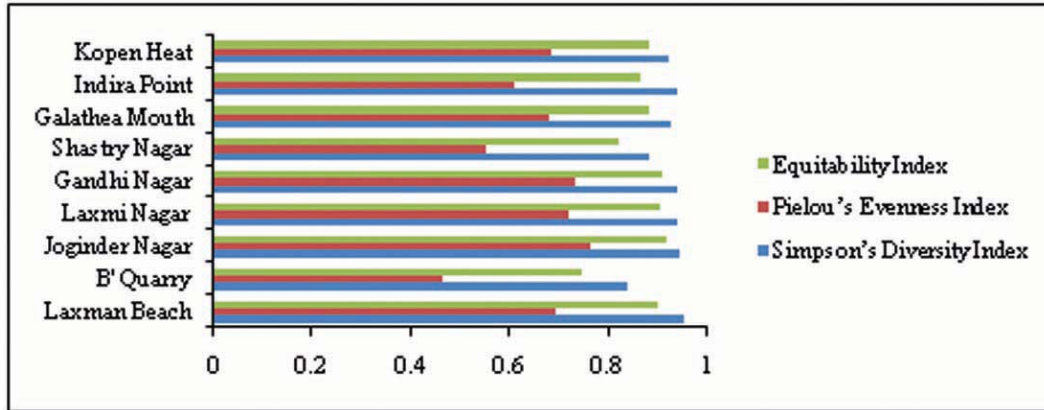


Fig. 42. Equitability, Pielou's Evenness and Simpson's Diversity Indices of echinoderms at Great Nicobar Island

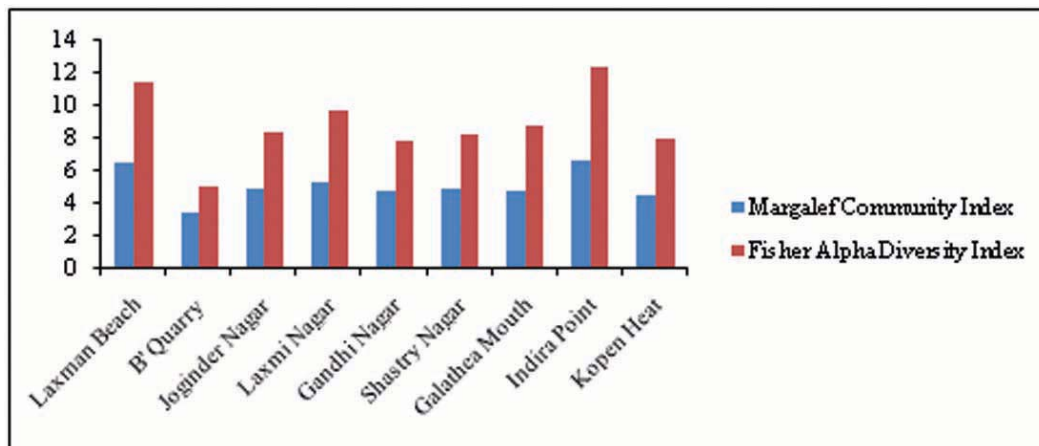


Fig. 43. Margalef Community and Fisher Alpha Diversity Indices of echinoderms of Great Nicobar Island

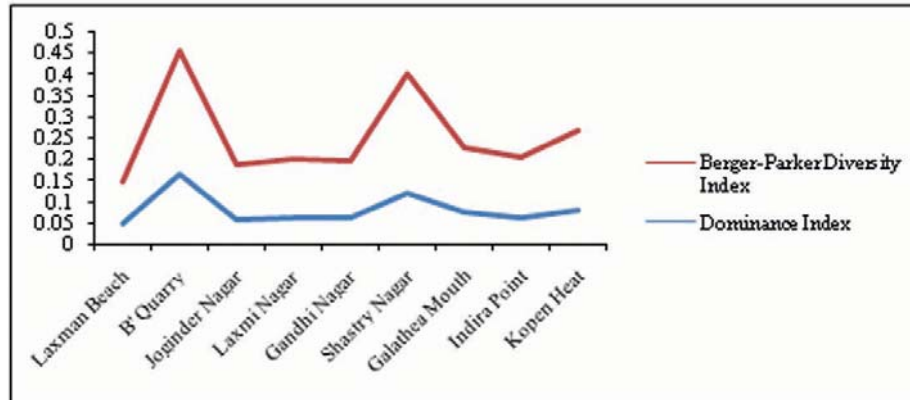


Fig. 44. Dominance and Berger-Parker Diversity Indices of echinoderms of Great Nicobar Island

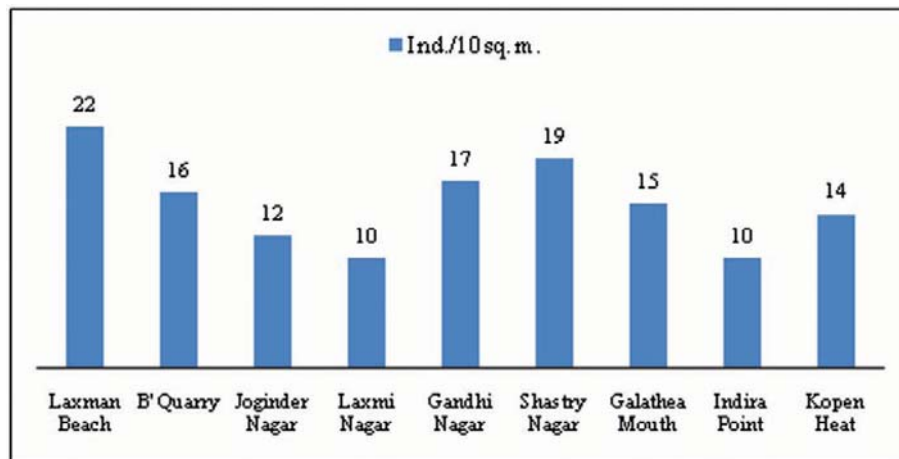


Fig. 45. Density of Echinoderms at Great Nicobar Island

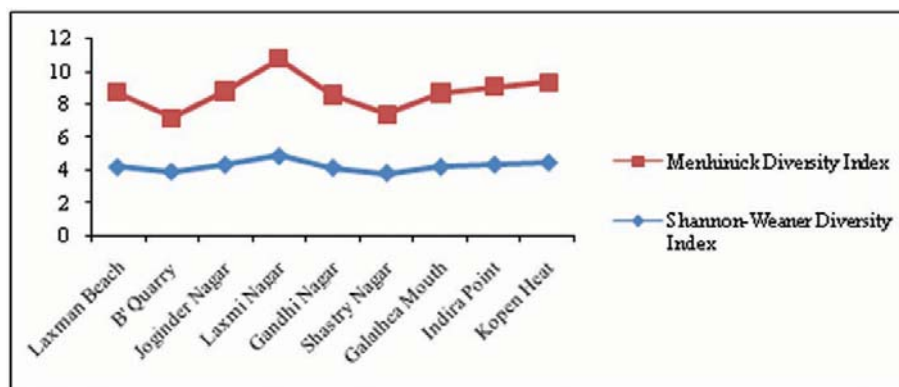


Fig. 46. Shannon-Weaver and Menhinick Diversity Indices of Fishes of Great Nicobar Island

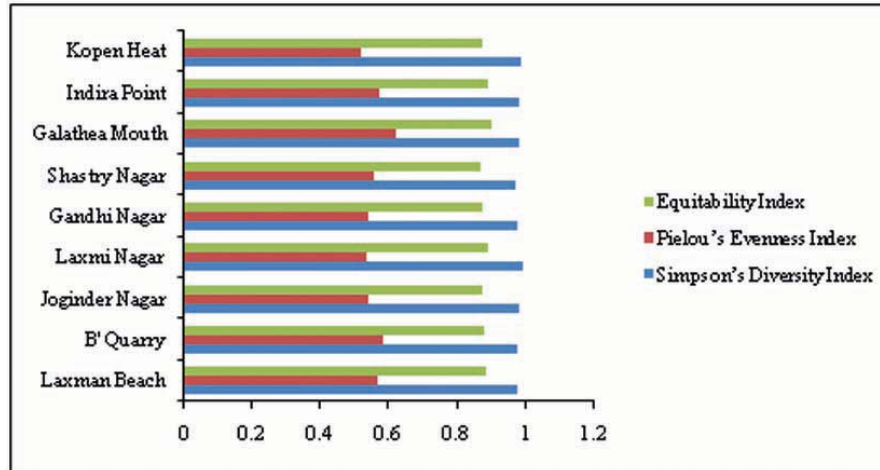


Fig. 47. Equitability, Pielou's Evenness and Simpson's Diversity Indices of Fishes at Great Nicobar Island

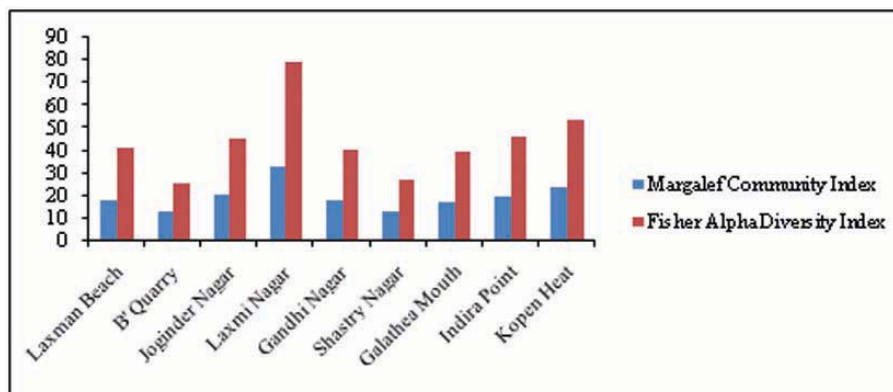


Fig. 48. Margalef Community and Fisher Alpha Diversity Indices of fishes of Great Nicobar Island

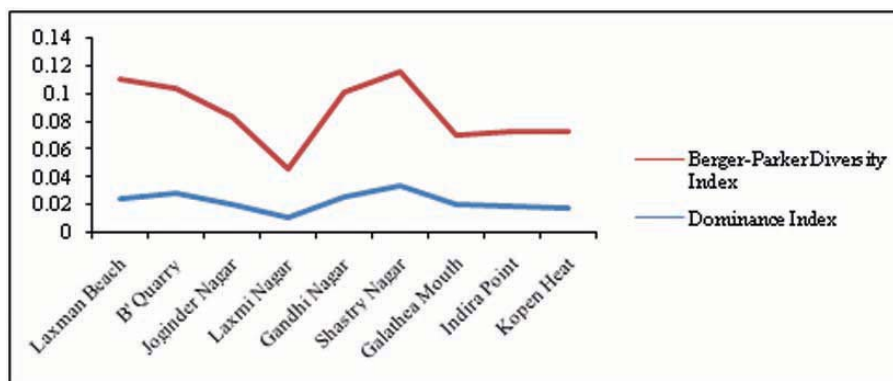


Fig. 49. Dominance and Berger-Parker Diversity Indices of fishes of Great Nicobar Island

PLATE-1 : Study areas of Great Nicobar Island



1. Laxman beach



2. B' Quarry



3. Joginder nagar



4. Laxmi Nagar



5. Gandhi Nagar

PLATE-II : Study areas of Great Nicobar Island

6. Shastry nagar



7. Galathea Mouth



8. Indira Point



9. Kopen Heat

PLATE-3 : Sponges of Great nicobar Island



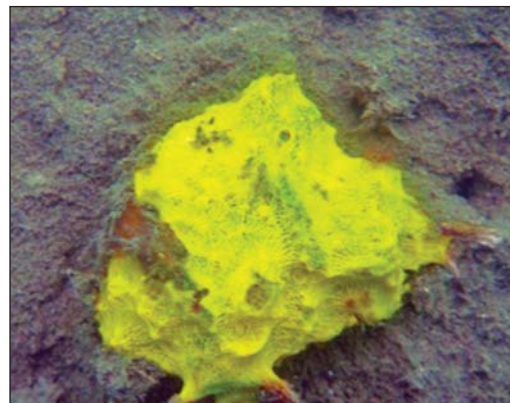
Cliona ensifera SOLLAS, 1878



Acanthella klethra PULITZER-FINALI, 1982



Cliona varians (Duchassaing & Michelotti, 1864)



Iotrochota baculifera RIDLEY, 1884



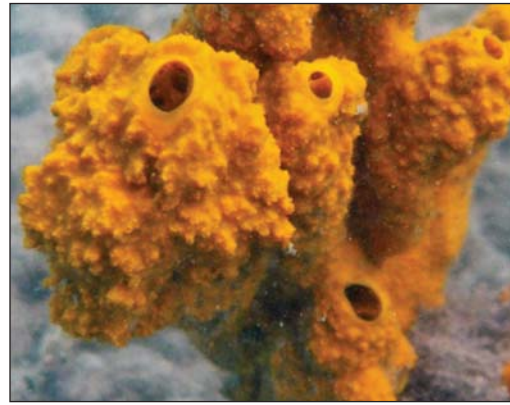
Oceanapia sagittaria (SOLLAS, 1902)



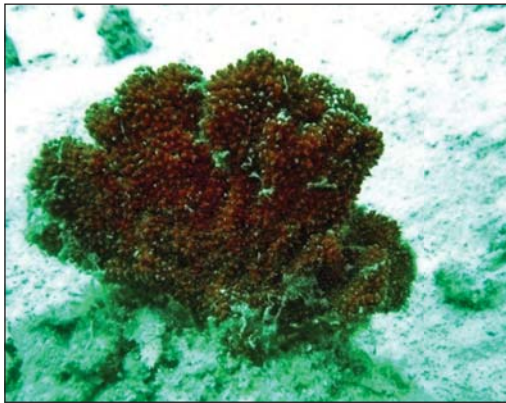
Rhabdastrella globostellata (CARTER, 1883)

PLATE-4 : Sponges of Great nicobar Island

Paratetilla bacca (Selenka, 1867)



Stylissa massa (Carter, 1887)



Axinella acanthelloides Pattanayak, 2006



Carteriospongia foliascens (Pallas, 1766)



Chalinula nematifera (de Laubenfels, 1954)



Clathria cervicornis (Thiele, 1903)

PLATE-5 : Sponges of Great nicobar Island



Axinella cannabina (Esper, 1794)



Pseudoceratina purpurea (Carter, 1880)



Ecionemia acervus Bowerbank, 1864



Hyrtios erectus (Keller, 1889)



Petrosia strongylata Thiele, 1903

PLATE-6 : Scleractinian corals of Great Nicobar Island*Acropora humilis* (Dana, 1846)*Favia matthai* Vaughan, 1918*Favia pallida* (Dana, 1846)*Fungia scabra* Döderlein, 1901*Galaxea fascicularis* (Linnaeus, 1767)*Hydnophora microconus* (Lamarck, 1816)

PLATE-7 : Scleractinian corals of Great nicobar Island



Leptoria phrygia (Ellis & Solander, 1786)



Pectinia paeonia (Dana, 1846)
Pectinia lactuca Pallas, 1766



Pocillopora damicornis (Linnaeus, 1758)



Pocillopora eydouxi
Milne Edwards & Haime, 1860



Stylophora pistillata Esper, 1797



Tubastraea micranthus (Ehrenberg, 1834)

PLATE-8 : Scleractinian corals of Great nicobar Island*Acropora formosa* (Dana, 1846)*Acropora gemmifera* (Brook, 1892)*Acropora hyacinthus* (Dana, 1846)*Acropora latistella* (Brook, 1891)*Acropora monticulosa* (Brüggemann, 1879)*Acropora nasuta* (Dana, 1846)

PLATE-9 : Scleractinian corals of Great nicobar Island



Acropora palifera (Lamarck, 1816)



Acropora polystoma (Brook, 1891)



Acropora robusta (Dana, 1846)



Acropora spicifera (Dana, 1846)



Pocillopora danae Verrill, 1864



Seriatopora hystrix Dana, 1846

PLATE-10 : Scleractinian corals of Great nicobar Island

Echinopora gemmacea Lamarck, 1816



Favia helianthoides Wells, 1954



Favia lizardensis Veron and Pichon, 1977



Favia truncatus Veron, 2002



Favites abdita (Ellis and Solander, 1786)



Favites vasta (Klunzinger, 1879)

PLATE-11 : Scleractinian corals of Great nicobar Island



Fungia scutaria Lamarck, 1801



Herpolitha limax (Esper, 1797)



Oulophyllia crista (Lamarck, 1816)



Pachyseris gemmae Nemenzo, 1955



Physogyra lichtensteini Milne Edwards & Haime, 1851



Platygyra acuta Veron, 2002

PLATE-12 : Soft corals of Great nicobar Island

Cladiella krempfi (Hickson, 1919)



Dendronephthya mirabilis (Tixier-Durivault &Prevorsek, 1962)

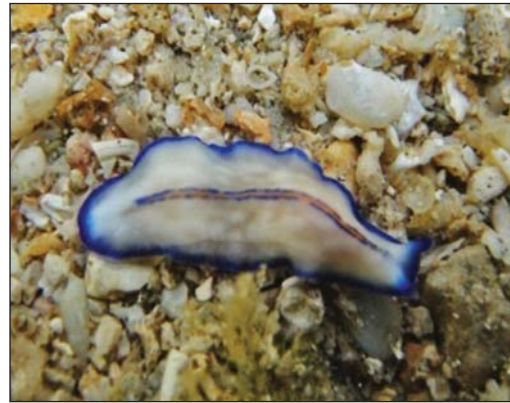


Dendronephthya savignyi (Ehrenberg, 1834)

PLATE-13 : Polyclads of Great nicobar Island



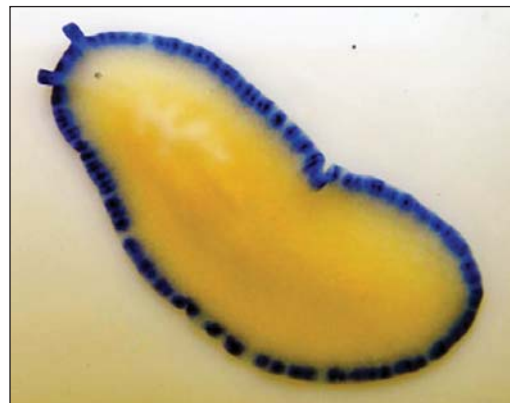
Pseudoceros bifurcus Prudhoe, 1989



Pseudoceros concinnus (Collingwood, 1876)



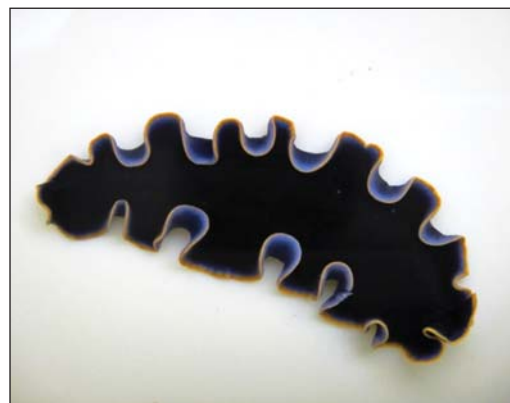
Pseudoceros goslineri Newman & Cannon, 1994



Pseudoceros indicus Newman & Schupp, 2002



Pseudobiceros bedfordi (Laidlaw, 1903)



Pseudobiceros flavocanthus Newman & Cannon, 1994

PLATE-14 : Crabs of Great nicobar Island*Epixanthus frontalis* (H. Milne Edwards, 1834)*Grapsus albolineatus* Lamarck, 1818*Grapsus longitarsis* Dana, 1851*Thalamita admete* (Herbst, 1803)*Trapezia cymodoce* (Herbst, 1801)*Trapezia rufopunctata* (Herbst, 1799)*Uca annulipes* H. Milne Edwards, 1937*Uca chlorophthalmus* (H. Milne Edwards, 1837)

PLATE-15 : Shrimps of Great nicobar Island



Thor amboinensis (de Man, 1888)

PLATE-16 : Shrimps of Great nicobar Island*Panulirus penicillatus* (Olivier, 1791)

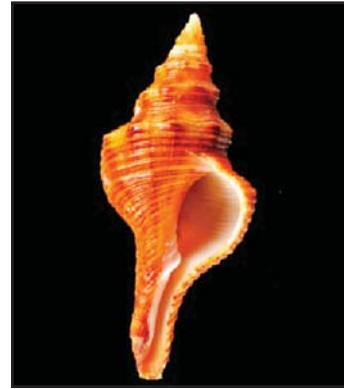
PLATE-17 : Molluscs of Great nicobar Island



Pterygia dactylus (Linnaeus, 1758)



Conus canonicus Hwass, 1792



Pleuroploca filamentosa (Roeding, 1798)



Cymatium (Guttarium) muricinum (Roding, 1798)



Drupa ricinus (Linnaeus 1758)



Rhinoclovis vertigus Linnaeus, 1767



Lambis chiraga Linnaeus, 1758



Rhinoclavus sinensis (Gmelin, 1791)



Strombus canarium Linnaeus, 1758

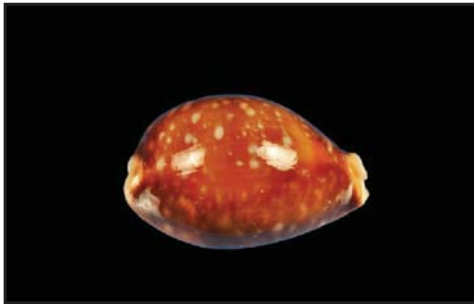
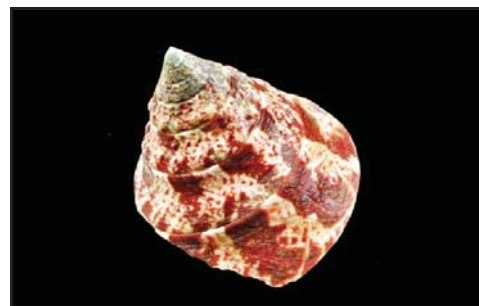
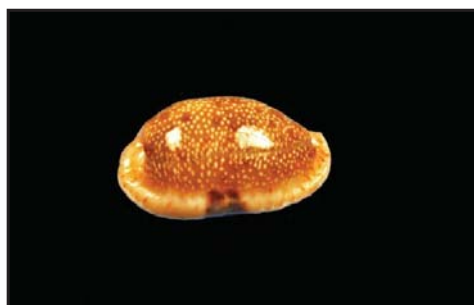
PLATE-18 : Molluscs of Great nicobar Island*Cypraea vittatus* Linnaeus, 1758*Cymatium (Monoplex) nicobaricum* (Roding, 1798)*Latirus polygonus* Gmelin, 1791*Trochus niloticus* (Linnaeus, 1767)*Tutufa rubeta* (Linnaeus, 1758)*Cypraea (Laparocypraea) mappa* (Linnaeus, 1758)*Cypraea erosa* Linnaeus, 1758*Conus nussatella* Linnaeus, 1758

PLATE-19 : Opisthobranchs corals of Great nicobar Island



Chromodoris alius Rudman, 1987



Dendrodoris fumata (Ruppell and Leuckart, 1831)



Dendrodoris nigra (Stimpson, 1855)



Phyllidia varicosa Lamarck, 1801



Glossodoris atromarginata (Cuvier, 1804)



Phyllidiella zeylanica (Kelaart, 1859)

PLATE-20 : Opisthobranchs corals of Great nicobar Island*Phyllidia marindica* (Yonow & Hayward, 1991)*Phyllidia ocellata* Cuvier, 1804*Chromodoris fidelis* (Kelaart, 1858)*Elysia* sp*Hoplodoris estrelyado* Gosliner & Behrens, 1998*Jorunna funebris* (Kelaart, 1858)

PLATE-21 : Opisthobranchs corals of Great nicobar Island



Noumea simplex (Pease, 1871)



Philinopsis gardineri (Eliot, 1903)



Pupa solidula (Linnaeus, 1758)



Atys naucum (Linnaeus, 1758)



Phyllidia coelestis Bergh, 1905



Plakobranchus ocellatus Van Hasselt, 1824

PLATE-22 : Echinoderms corals of Great nicobar Island

Comaster multibrachiatus (Carpenter, 1888)



Comaster multifidus (Müller, 1841)



Capillaster multiradiatus (Linnaeus, 1758)



Echinometra mathaei (Blainville, 1825)



Holothuria atra Jaeger, 1833



Actinopyga mauritiana (Quoy & Gaimard, 1834)

PLATE-23 : Echinoderms corals of Great nicobar Island



Stichopus chloronotus Pearson, 1903



Acaudina malpadioides (Semper, 1868)



Labiododemas rugosum (Ludwig 1875)



Acanthaster planci (Linneaus, 1758)



Bohadschia graeffei (Semper, 1868)



Cenometra emendatrix (Bell, 1892)

PLATE-24 : Echinoderms corals of Great nicobar Island*Holothuria arenicola* (Semper, 1868)*Holothuria edulis* (Lesson, 1830)*Holothuria impatiens* (Forskal, 1775)*Labiododemas semperianum* (Selenka, 1867)*Macrophiothrix longipeda* (Lamarck, 1816)*Stomopneustus variolaris* (Lamarck, 1816)

PLATE-25 : Boney Fishes corals of Great nicobar Island



Acanthurus leucosternon Bennett, 1833



Amblyglyphidodon aureus (Cuvier, 1830)



Bryaninops yongei (Davis & Cohen, 1968)



Caesio xanthonota (Bleeker, 1853)



Canthigaster coronata (Vaillant and Sauvage, 1835)



Canthigaster solandri (Richardson, 1845)

PLATE-26 : Boney Fishes corals of Great nicobar Island



Chaetodon kleinii Bloch, 1790



Chaetodon lineolatus Cuvier, 1831



Cirrhitichthys oxycephalus (Bleeker, 1855)



Ecsenius lineatus Klausewitz, 1962



Eurycephalus carbunculus (Valenciennes, 1833)



Forcipiger flavissimus Jordan & McGregor, 1898

PLATE-27 : Boney Fishes corals of Great nicobar Island



Heniochus acuminatus (Linnaeus,1758)



Labroides dimidiatus (Valenciennes,1839)



Lutjanus biguttatus (Valenciennes,1830)



Paracirrhites forsteri (Schneider,1801)



Plagiotremus rhinorhynchus (Bleeker,1852)



Platax orbicularius (Forsskal,1775)

PLATE-28 : Boney Fishes corals of Great nicobar Island*Pomacentrus philippinus* Evermann and Seale, 1907*Pseudanthias ignitus* Randall and Lubbock, 1981*Pterois radiata* Cuvier, 1829*Pterois volitans* (Linnaeus, 1758)*Trimma benjamini* Winterbottom 1996*Zanclus cornutus* (Linnaeus, 1758)