

# CMFRI bulletin 43

APRIL 1989



## **MARINE LIVING RESOURCES OF THE UNION TERRITORY OF LAKSHADWEEP —**

**An Indicative Survey  
With Suggestions For Development**

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**Limited Circulation**

## 20. UNDERWATER OBSERVATIONS IN THE LAGOONS

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### INTRODUCTION

The paper deals with the results of the underwater observations carried out on the faunistic and topographical features by direct underwater observations at selected localities covering the entire length and breadth of the lagoons of Minicoy, Suheli paar, Kalpeni, Kavaratti Androth, Agatti, Bangaram, Amini, Kadmat, Kiltan, Bitra and Chetlat between January and April 1987. In each island a week long survey was carried out by means of diving. The scope of this report is limited and by no means exhaustive. It enables us to provide first hand information on the nature of substratum, disposition of coral reefs, fauna and flora of the lagoon.

For the purpose of mapping the distribution pattern of different species of marine fauna and flora, it was felt convenient to divide each island into different sectors (Figs 1&2) and observations by diving were made on a transect line commencing from the low water mark to the outer reef crest. In each transect line 4 to 6 stations were selected for observation taking care to include the shoreward lagoon, mid lagoon, outer lagoon, reef flat and reef.

### MINICOY

*Sector 1:* This sector commences from the middle of the southern portion of the eastern shore and extends upto the southern end. The intertidal region is sandy intermittent with coral boulders. Along the shoreward portion of the lagoon, the substratum is mostly sandy.

Massive corals (*Porites* sp) are widely distributed in this region. Silt deposition is high in this region and due to this effect huge shoals of corals lie buried into the sand. On the mid portion, the lagoon's bottom is sandy. Here too, heavy silting is observed, Molluscs and holothurians appear to be absent. The branching acroporans are the dominant corals in this region, of which the commonest and the most characteristic one is *Acropora formosa*. *Porites* sp is also seen in certain locations. The reef flat is coralline, intermingled with coral sand. *Tridacna maxima* occurs in stray numbers.

**Sector II:** This sector commences from the middle of the island and extends upto the commencing point of sector 1. The intertidal

region of the sandy shore possesses a dense population of the clam belonging to the genus *Mesodasma*. Along the shoreward portion of the lagoon, the substratum is sandy where dense settlement of the clam belonging to the genus *Lucina* is observed. The maximum density of clam recorded is over 1000/m<sup>2</sup>. The coral community is sparse in this region. Silt deposition is high. The mid portion of the lagoon floor is formed mainly of coral sand. Majority of corals found in this region are dead ones. However patches of branching acroporans are seen here and there. Silt deposition is high in this region. Corals found to be dominant in the reef flat include several species of *Acropora* and *Porites*.

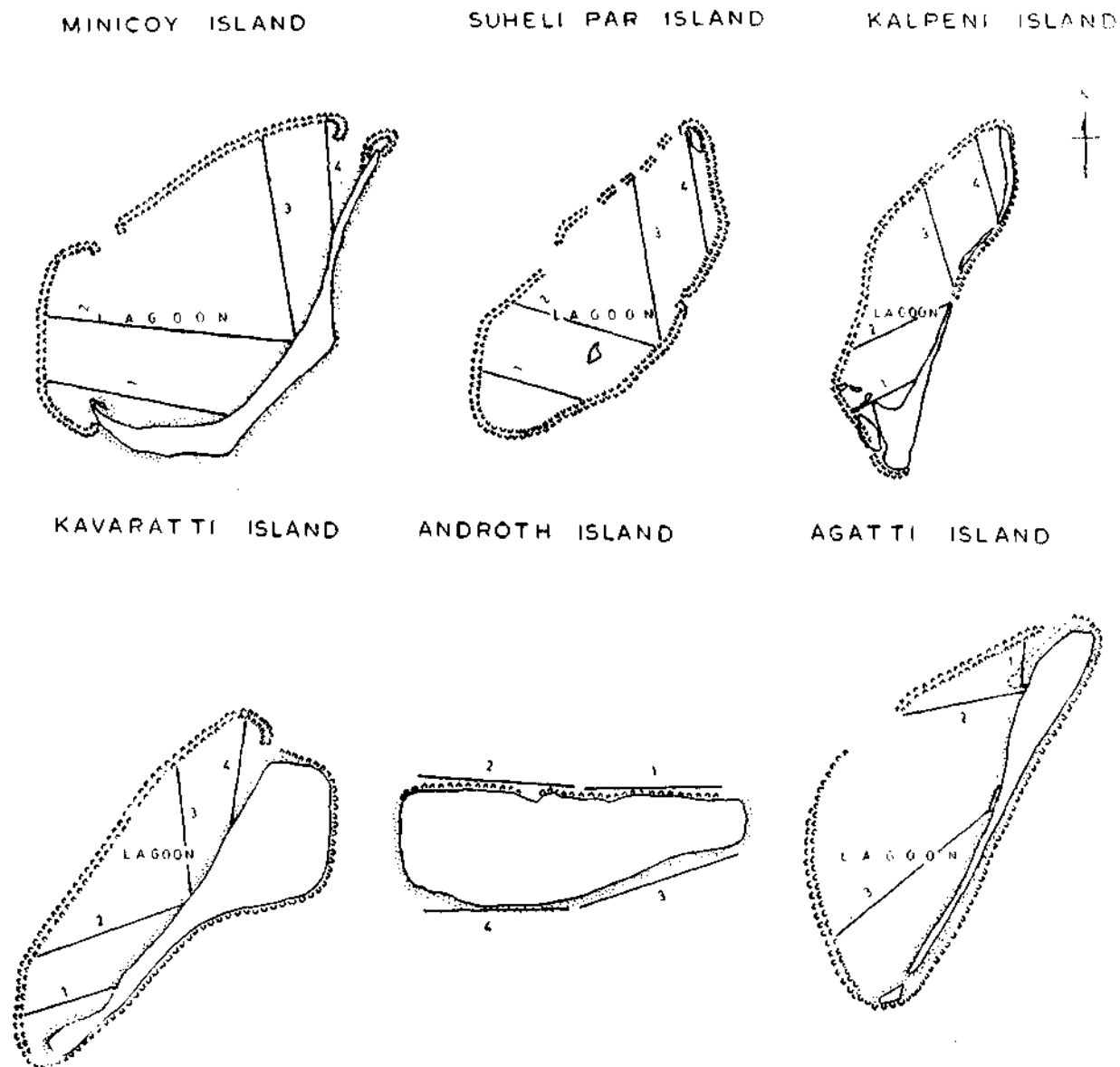


Fig. 20 Figure showing different sectors of the lagoons where under water observations were made

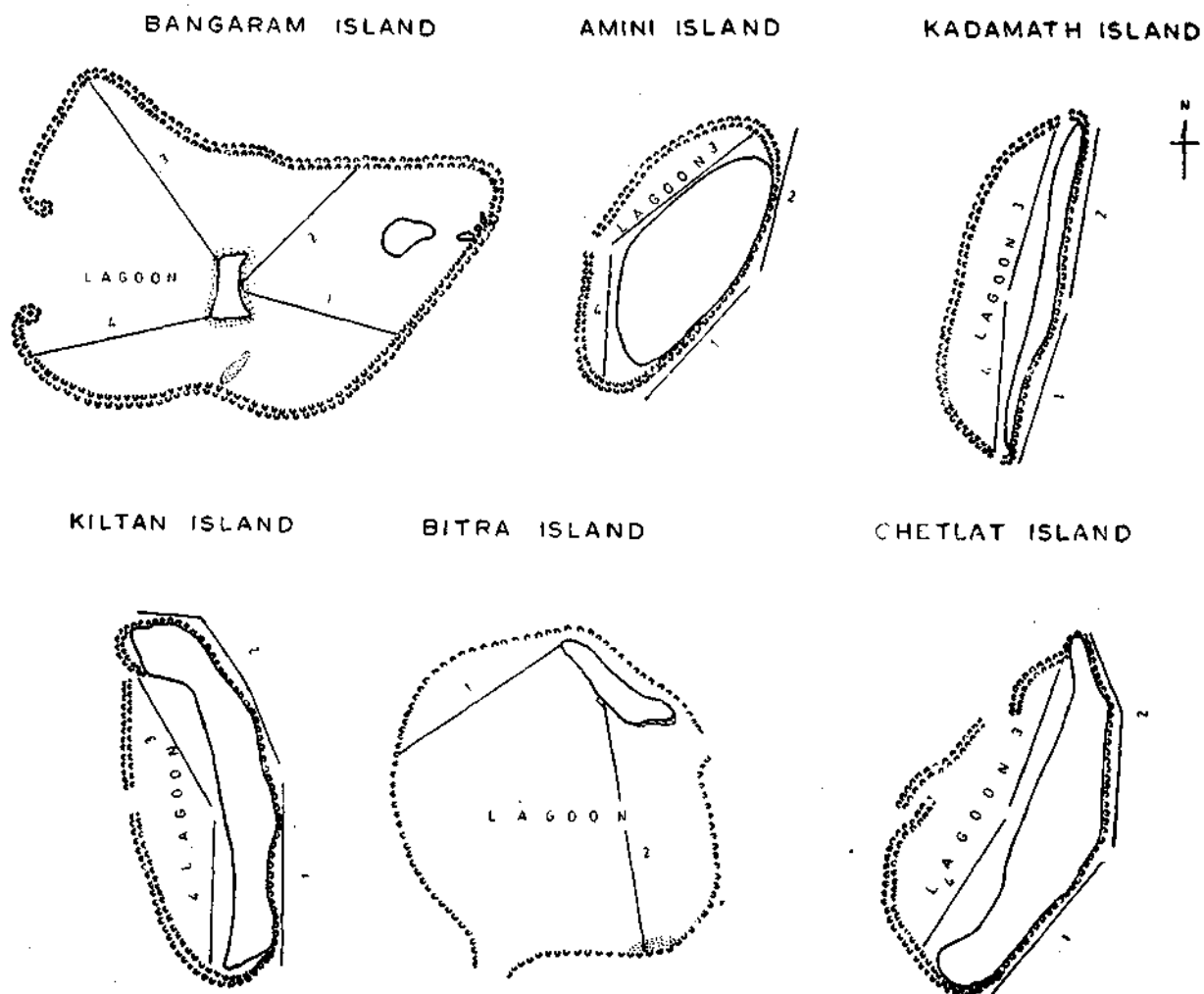


Fig. 2. Figure showing different sectors of the lagoons where underwater observations were made

**Sector III :** This sector commences from the mid point of the island and extends upto the point of commencement of sector IV. The intertidal region is sandy. Along the shoreward portion, the lagoon bottom is sandy intermittent with corals where dense settlement of clam *Lucina* sp is observed. The sea grass *Cymodocea* is abundant over wide areas. Sedimentation is observed to be high in few numbers. The fauna and flora of the mid portion of the lagoon are similar to those that occur in the sector II. The reef flat is formed mainly of coral boulders on sand. Several species of branching acroporan and *Porites* corals occur in this region. Molluscan fauna is sparse in this region.

**Sector IV:** This sector commences from the middle portion of the northern side and extends upto the northern end. The fauna and flora of this region are almost identical to those of sector II and III.

#### SUHELI PAAR

The Suheli paar lagoon is very extensive and deep in certain localities. Inside the lagoon two islets are located. One is Valiakara which is located on the northern end of the lagoon and the other is Cheriya kara which is located on the southern end.

**Sector I :** This sector commences from the middle of the southern portion and extends upto the southern end. On the eastern side of the lagoon, the reef flat is submerged in water. The reef flat is constituted mainly of coral boulders with intermittent coral bits. The coral reef in this region comprised mainly of *Acropora* spp. Besides this, the other forms noticed are the pearl oysters (*Pinctada sugillata*) and sea weeds (*Halimeda* sp, *Padina* sp. and *Turbinaria* sp.). Below this region is the shoreward portion of the lagoon where the floor is constituted

mainly of sand with occasional corals. The depth varies between 1m and 3m. This zone supports a variety of fauna and flora. These include the common corals (*Acropora* spp and *Fungia* sp), molluscs (*Tridacna maxima* and *Conus* spp) and the sea weeds (*Chaetomorpha* sp, *Halimeda* sp, *Sargassum* sp and *Padina* sp.) In the mid portion the bottom components constituted mainly of sand with decayed corals. The depth in this zone ranges between 3 and 5 m. Corals like *Acropora* spp and *Haliopora* sp. are very common. Fishes inhabiting the corals are *Ostorhynchus* sp., *Labroides dimidiatus*, *Dascyllus* sp and *Acanthurus* sp. Two pelecypod molluscs namely *Pinctada sugillata* and *Tridacna maxima* are frequently seen. Noteworthy among the sea weeds growing here are *Chaetomorpha* sp., *Halimeda* spp, *Turbinaria* sp and *Sargassum* sp. The reef flat is submerged in water and the depth range is between 0.5 and 2.0 m. The substratum is firm with dead coral boulders. Frequenting the rocky bottom, fishes like *Ostorhynchus* sp and *Rhinacanthus* sp and *Labroides dimidiatus* are very common. The molluscan fauna is sparse except for the occurrence of *Lambis* sp, *Conus* spp and *Tridacna maxima*. The density of algal vegetation is very thin.

**Sector II:** The sector commences from the middle of the southern portion and extends upto the mid portion of the lagoon. On the outer reef flat of the eastern side, the substratum is hard with stretches of coral rocks where the depth ranges between 0.5 and 2.0 m. The slope from the lagoon reef to the lagoon floor is gradual and the floor itself is covered thickly with sand and coral bits. The fauna and flora of these 2 regions are similar to those found in the same zones of sector I. In between the mid and shoreward portion of lagoon, Cheriyaakara is located. The intertidal region of sandy shore possesses dense population of the clam belonging to the genus *Mesodesma*. Besides this, the other forms include polychaete worms siphunculid worms and *Emerita* sp. The mid portion of the lagoon bottom component constituted mainly of sand with live and dead corals. The area is poor in animal life but covered by patches of algae such as *Halimeda* sp, *Turbinaria* sp and *Padina* sp. The reef flat on the western side of the lagoon is submerged in water. The

substratum is hard with dead coral bits and coral boulders. The coral communities of this region include *Acropora* sp and *Porites* sp.

**Sector III:** This sector lies in between the mid point and the middle of the northern portion of the lagoon. In this sector too, the outer reef flat of the eastern side is formed mainly of coral boulders. The massive coral *Porites* spp are seen in abundance. The giant clam *Tridacna* sp is seen in some part of the reef flat. On the shoreward portion of the lagoon corals belonging to the genera *Porites* and *Acropora* are moderately abundant. The giant clam *Tridacna maxima* is occasionally noticed. Patches of *Turbinaria* sp and *Cymodocea* sp are seen in some parts of the lagoon. The mid portion of lagoon floor is covered mainly with sand and dead corals. The depths here varies between 3 and 5 m. Branching acroporan coral and the solitary coral *Fungia* sp. are abundant. The reef flat is submerged in water and the fauna and flora are identical to those that occur in the same zone of sector I & II.

**Sector IV:** This zone commences from the middle of the northern portion of the lagoon and extends upto the northern end. The islet Valiakara is located in this sector. The eastern side reef flat is composed mainly of coral boulders. The shoreward portion of the lagoon's floor is sandy with coral rocks where the depth varies between 1 and 3 m. The giant clam *Tridacna maxima* is the most abundant mollusc in this region. The coral communities and algal vegetation are less abundant. The middle of the lagoon floor is sandy where the depth range is between 3 and 5 m. Molluscs and holothurians are not observed in this region. The area supports a wide variety of acroporan and *Porites* corals. The reef flat is composed mainly of reef rocks and dead corals. The molluscs, *Tridacna* sp and *Lambis* sp are generally abundant and larger in size. The area supports a thick growth of algae such as *Halimeda* sp, *Padina* sp and *Laurencia* sp.

#### KALPENI

Unlike the topography of other Lakshadweep islands, Kalpeni has an extensive lagoon in which 3 pitties and 2 Thilagams are located on the southern portion of the lagoon. On the northern portion of the lagoon, an islet called Cheriyaam and a sand dune called Kodithala are located.

**Sector I :** This sector commences from the middle portion of the lagoon's western shore and extends upto the southern end. All along the south west region of the island, the intertidal expanse is shallow and broad (100 m). The length is about 500 m. The substratum is formed mainly of coral sand. Dense population of the clam belonging to the species *Tellina idae* occur in this region. The shoreward portion of the lagoon is heavily silted. The corals lie buried in the sand. Among molluscs, *Tridacna maxima* and *Pinctada sugillata* are the common ones. Among the echinoderms, *Acanthaster planci* and *Linckia* sp predominate. Among sea weeds, *Gracilaria edulis* is abundant over wide areas. In the mid portion, 3 pitties and 2 Thilagams are located. The shore area of these pitties and Thilagams consists mainly of coral sand and coral stones. Few dead shells of *Codakia* sp are also observed. Over the remaining portion of the lagoon's floor, dead corals were found strewn in abundance. Algal growth is poor in this area. Parts of the reef flat are often exposed during low tide. Coral growth is not observed in this zone. The characteristic mollusc of this region is the giant clam *Tridacna maxima*. Algal vegetation is seen to be poor.

**Sector II :** This sector commences from the mid point of the island and extends upto the northern end of the island. The intertidal region is sandy intermittent with coral bits. Animal life inhabiting the beach sand is very poor. The shoreward portion of the lagoon is shallow and the substratum is formed mainly of coral rocks and sand. This area supports a few species of echinoderms (*Bohadschia* sp and *Actinopyga* sp) and molluscs (*Tridacna maxima*). The sea weed *Gracilaria edulis* and the sea grass *Cymodocea* sp are common. However, the coral growth seems to be poor in this region. Heavy silting is observed in this zone. On the mid portion of the lagoon the floor is sandy with dead and live coral patches. The depth varies between 3 and 6 m. The sandy areas between the coral patches support a wide variety of organisms. Among corals, species of *Helipora*, *Acropora*, *Porites* and *Fungia* predominate. *Alcyonarians* are seen in this region. *Tridacna maxima* is the characteristic mollusc of this region. The echinoderms *Linckia laevigata* lie on the coral sand. Sea weeds such as *Halimeda* sp, *Caulerpa* sp and *Gracilaria edulis* are seen

in some parts of lagoon. The reef flat is formed mainly on coral boulders where the depth ranges between 1 and 2 m. Among corals, species of *Acropora* and *Porites* predominate. The less important genus is *Fungia*. This region supports a small association of molluscs such as *Tridacna* sp., *Cypraea* sp and *Trochus* sp. Among sea weeds, *Halimeda* sp and *Gelidium* sp are the most common ones.

**Sector III :** This sector lies in between the northern end of island and the southern end of the islet 'Cheriyam'. The eastern side of the reef flat is formed mainly of coral boulders where the cowrie *Cypraea* sp is very common. The algal vegetation is very sparse. The shoreward portion of the lagoon's substratum is formed mainly of sand. The most characteristic molluscs of this region are *Tridacna* sp and *Pinctada sugillata*. Two species of echinoderms namely *Actinopyga* and *Linckia* sp occur in this region. Among corals, species of *Acropora* and *Porites* are found spread on the bed. Among sea weeds, *Turbinaria* sp predominate. The lagoon's depth at mid portion varies between 3 and 6 m. The lagoon floor is mostly sand with occasional corals. The fauna and flora that occur in this region are similar to those which occur in the same zone in sector II. The reef flat is formed mainly of coral boulders where the range of depth is between 1 and 2 m. Molluscan and echinoderm fauna are generally absent. Among corals, species of *Acropora* and *Porites* predominate. Small patches of algal vegetation are seen here and there.

**Sector IV :** This commences from the southern end of the islet Cheriyam and extends upto the northern end of the lagoon. The intertidal zone is sandy and the fauna and flora inhabiting this zone is very sparse. The shoreward portion of the lagoon is sandy intermingled with corals and debris. The coral community is represented by species of *Acropora* and *Porites*. Several species of coral associated fishes occur in this region. The echinoderm and molluscan fauna are sparse. Several species of sea weeds namely *Enteromorpha* sp, *Cheetomorpha* sp, *Turbinaria* sp, and *Laurencia* sp occur in this region. On the mid portion of the lagoon, the substratum is sandy with live and dead corals. The depth varies between 3 and 5 m. In most areas, the upper part of coral shoals shows profound

growth whereas the lower portion seems to be in a decayed condition. Silt deposition is very high in this region and due to this effect huge shoals of coral lie buried into the sand. The echinoderms and molluscs are sparse in this region. The common sea weed which occur in this region are *Halimeda* sp, *Caulerpa* sp, and *Turbinaria* sp. On the reef flat, the bottom constituents consists mainly of coral boulders and sand. The coral community is represented by species of *Acropora* and *Porites*. Except *Tridacna maxima*, no other mollusc observed in this zone and *Turbinaria* sp are common.

#### KAVARATTI

**Sector I:** This sector commences from the southern portion of the lagoon's western shore and extends upto the southern end. The intertidal zone is composed mainly of coral sand with intermittent coral bits. Among the shoreward portion of the lagoon, the substratum is sandy with large shoals of live and dead corals distributed equally. The depth in this zone ranges between 2 and 3 m. On the mid portion, the lagoon floor is mostly sandy. Corals are the dominant organisms on the lagoon's floor. These include *Acropora formosa*, *A. teres* and *A. aspera*. The most characteristic molluscan fauna of this region is the giant clam *Tridacna maxima*. These clams are found attached to or buried in corals and are firmly attached to substrate by means of byssus. *Holothuria atra* is the only echinoderm occurring in this region. The lower portion down to the middle zone is occupied by *Tridacna maxima*, *Holothuria atra*, *Acropora formosa*, *A. teres*, *Porites lutea* and *P. solida*. Beyond this region is the reef flat, which is composed mainly of reef rocks and dead corals. The depth of the water ranges between 1 and 2 m. *Tridacna maxima*, *Cypraea* spp and *Conus* spp are the main molluscs of this region. The sea weeds encountered in this region are *Gelidiella acerosa*, *Gracilaria edulis* and *Turbinaria* sp. The sea grass *Cymodocea serrulata* also occur here and there in this region. The surface living holothurians are sparse.

**Sector II:** This zone starts from the middle of the island and extends upto the commencing point of sector I. The molluscan fauna is very sparse. The shoreward portion of the lagoon is shallow and the depth ranges between 2 and

3 m. The floor is sandy intermittent with live and dead corals. (*Acropora formosa*, *A. teres* and *A. hyacinthus*). The algal vegetation is sparse in this region. However, two species of holothurians namely *Holothuria atra* and *H. cineracens* are very common. In this zone, the giant clam *Tridacna maxima* is the only mollusc to predominate. The mid portion of the lagoon's floor is formed mainly of calcareous rocks where the depth ranges between 2 and 3 m. Molluscs and holothurians appear to be absent. However many species of corals namely *Acropora teres*, *Porites lutea*, *P. solida* and *Fungia* sp are very common. The sea weeds (*Gelidiella acerosa*, *Turbinaria* spp and *Padina* sp) and the sea grass *Cymodocea* sp are abundant over wide areas forming rich green tufts. The reef flat is partially exposed in this region. Corals are the dominant organisms of the reef flat. These include *Acropora teres* and *Porites* spp. Among molluscs, *Tridacna maxima* is generally abundant in this region. In some areas, the weeds *Gelidium* sp, *Turbinaria* sp and *Padina* sp are abundant.

**Sector III:** This sector commences from the middle portion of the island and extends upto the point of commencement of sector IV. Along the intertidal region, the clams belonging to the genus *Mesodesma* and the mole crab, *Emerita* sp occur in stray numbers. On the shoreward portion of the lagoon, the substratum is sandy. The substratum is perhaps unsuitable for many molluscs and corals. The echinoderm fauna is mostly represented by *Holothuria cineracens* and *H. atra*. They live mostly on the sandy bottom and a few live ones under rocky crevices. Sea weeds and sea grass are well represented; the important species being those of *Gelidium*, *Padina*, *Turbinaria* and *Cymodocea*. Compared to the shoreward portion of the lagoon, the mid portion is richer in fauna and flora qualitatively and quantitatively. The lagoon floor consists mainly of calcareous sand intermittent with broken corals and live and dead corals. The clarity of water is good and the depth ranges between 2 and 5 m. This zone is characterized by thick assemblage of various coral communities namely *Acropora teres*, *A. formosa*, *A. aspera* and *Fungia* sp. The corals provide ideal habitat for many species of lagoon fishes. *Octopus macropus* is the only cephalopod noticed in this region in pits and crevices. Two



species of holothurians viz: *Holothuria atra* and *H. cineracens* are very common. Fishes in vivid colours and various sizes inhabit this zone. Besides these organisms, this zone is characterised by a dense growth of sea weeds such as *Gracilaria edulis*, *Padina* sp and *Turbinaria* sp. The occurrence of massive corals and boulders is the most characteristic feature of the reef flat. The organisms found in this zone include the gastropods (*Turbo* spp, *Trochus* spp and *Cypraea* spp).

**Sector IV:** This sector begins from the middle of the northern part of the lagoon and extends upto the northern end. The intertidal region is composed mainly of coral sand intermittent with coral rocks and debris. The shoreward portion of the lagoon is sandy and shallow and the environment is dominated by thick growth of coral *Acropora* and *Porites*. The corals harbour many lagoon fishes. The characteristic sea weeds noticed here are *Gelidium* sp and *Turbinaria* sp. Below the shoreward region is the mid portion of the lagoon. The depth ranges between 2 and 4 m. The substratum is hard with live and dead corals evenly distributed. *Acropora formosa*, *A. teres*, *Porites* sp and *Fungia* sp with associated fishes characterised this zone. Over the lagoon's floor, patches of algae such as *Laurencia* sp, *Caulerpa* sp and *Sargassum* sp. could be seen. The reef flat gets exposed during low tide. This region supports very poor animal life. The molluscan fauna is dominated by *Lambis truncata*, *Tridacna maxima*, *Cypraea* spp and *Trochus* spp. The sea weed flora consists of predominantly *Halimeda* sp and *Gelidium* sp.

#### ANDROTH

Androth has no lagoon and therefore the survey had to be carried out on the open sea.

**Sector I:** This sector commences from the middle of the northern side of the island and extends upto the eastern end. The intertidal region is sandy but a little farther the substratum is hard where the depth is about 1 m. In this zone, thick growth of *Modiolus* sp was seen over the substratum underneath luxuriant growth of sea weeds. Spat of the pearl oyster *Pinctada sugillata* also occur along with *Modiolus*. Large type boulder corals (*Porites* sp) and branching corals mostly of *Acropora* spp are seen in

many spots. Two species of echinoderms namely *Ophiocoma* sp and *Echinometra mathaei* occur in this region. The sea weeds *Gelidium* sp and *Turbinaria* sp are seen near the eastern end. The zone that lie about 100 to 200 m beyond the intertidal region constitute mainly of coral rocks intermittent with sand patches. The depth at this zone ranges from 5 to 7 m. Corals are the dominant organisms on the sea floor. These include species of *Acropora*, *Porites* and *Fungia*. Among echinoderms, *Echinothrix* sp occur in stray numbers. The gastropod, *Lambis* sp are distributed here and there.

**Sector II:** This sector commences from the middle of the northern side and extends upto the western end. The intertidal zone is mainly sandy but becomes hard deeper down. Dense settlement of *Modiolus* sp is noticed along with the pearl oyster spat *Pinctada sugillata*. Two species of echinoderms namely *Echinothrix diadome* and *E. calamris* occur in this region. Live and dead corals mostly branching (*Acropora* sp) and masive (*Porites*) are seen in this region. Good growth of sea weeds *Gelidium* sp and *Turbinaria* sp is noticed in this zone. The zone that lies about 100 to 200 m beyond the intertidal region has depth ranging between 5 and 7 m. The substratum is hard and the composition of the fauna and flora which occur in this region are identical to those that occur in the same zone in sector 1.

**Sector III:** This sector begins from the middle of the southern side of the island and extends upto the eastern end. The bottom of this zone is hard with coral boulders distributed here and there. Species of *Acropora* and *Porites* corals predominate in this region. The algal vegetation is poor. The zone that lies about 100 to 200 m beyond this zone is deeper where the depth ranges between 6 and 8 m. The substratum is hard with a film of coral sand. There is a very heavy underwater current here. Deep channel like structures filled with sand are evident in several localities. Different species of *Acropora* and *porites* corals are common. Molluscan fauna is not observed in this zone. *Turbinaria* sp and *Padina* sp are the most abundant sea weed occurring in this zone. The soft alcyonarians are seen on certain localities.

**Sector IV:** This sector commences from the middle of the southern side of the island and

extends upto the western end. The substratum is hard. About 50 m width of this zone get exposed during low tide. During low tide the *Modiolus* beds are completely exposed. Sparse settlement of *Pinctada sugillata* is also noticed on the substratum. The entire bed is covered by a thick mat of sea weeds. The coral community is sparse in this region. The zone that lies about 100 to 200 m beyond the intertidal region has a depth which varies from 6 to 8 m. Both live and dead corals of *Acropora* sp and *Porites* sp are abundantly seen. Bivalve molluscs are not seen in this zone.

#### AGATTI

**Sector I:** This sector commences from the northern point of the island's tip and extends upto the passenger jetty. The lagoon's main entrance is located at the northern end and the passage of all the mechanised fishing vessels are effected from this point only. The bottom of the lagoon is entirely of dead corals belonging to both branching and massive types spread all over this region. Silt deposition is heavy on the dead corals and the associated sea weeds perhaps due to human interference. As a result of this, the sea weeds growth is retarded. *Gracilaria* sp and *Turbinaria* sp are found along the northern side of lagoon. Among gastropods, *Lambis* spp and *Conus* spp are found in large numbers. Holothurian; sea urchins, star fishes and brittle stars are also represented in few numbers. Sea anemones with their associated fishes are in abundance in the northern part of the lagoon. The mid lagoon towards the south is mainly sandy. The lagoon side of the reef flat is mostly with live growth of massive corals towards the northern portion. Towards the south it is discontinuous in some places. Holothurians, *Cypraea* spp, *Lambis* spp and *Conus* spp are widely distributed on the lagoon side of the reef flat. Sea weeds are few in numbers, *Octopus* is present in good numbers in the shallow coralline crevices. This area, particularly the northern lagoon abound with many species of ornamental fishes like *Chaetodon*, *Amphiprion*, *Blennids*, *Acanthurus*, *Apogon*, *Platax*, *Callyodon*, *Chromis* etc.

**Sector II:** This sector starts from the passenger jetty in the north and extends upto the highly eroded portion of the island, about 300 m away from the southern end of the island. The

beach is sandy. In the intertidal region, dead coral beds are found exposed during low tide along the southern region of the sector. The sea grass *Cymodocea* grows profusely in some part of the lagoon towards the shore. The middle lagoon and the regions towards the shore is sandy. Patchy growth of sea grass is found here and there in the middle lagoon. No fauna could be observed on the sandy bottom. The reef flat of this sector is discontinuous in some parts and the substratum is sandy mixed rock bits. On the lagoon side of the reef flat, fresh growth of corals could be seen. Branching corals are sparse. The solitary corals *Fungia* sp and the giant clam *Tridacna maxima* are abundant on the coral mounts.

**Sector III:** This sector commences from the highly eroded portion of the island on the north and extends upto the southern tip of the Kalpitti Island. The beach is sandy throughout excepting the Kalpitti island where large quantities of dead coral bits are seen washed ashore. The beach as well as the intertidal area of the Kalpitti Island is only with dead corals and coral flats throughout. A small creek intercept the two islands, the bottom of which is sandy. The mid lagoon is mostly sandy with boulders and mounts of corals mostly massive and branching type. The solitary coral *Fungia* sp and the giant clam *Tridacna* sp are found in good numbers. *Lambis* spp, *Cypraea* spp and *Conus* spp are also found in fair numbers. The sea anemones and their associated fishes *Grammistes*, *Upeneus*, *Chaetodon*, *Amphiprion*, *Acanthurus*, *Canthigaster*, *Blennids*, *Chromis*, *Apogon*, *Platax*, *Abudefduf*, *Balistes* and *Callyodon* are the other fishes found in good numbers in this area.

#### BANGARAM

**Sector I:** This sector extends from the passenger jetty situated in the middle of the northern side of the island to the northeast corner of the island. All along the sea shore the beach is sandy. The bottom of the lagoon is mostly sandy. Broken pieces of branching corals are found spread on the sandy bottom. The fauna and flora are sparse in this region. Patchy growths of *Turbinaria* sp and *Gracilaria* sp on dead coral pieces are found in small quantities. Holothurians, star fishes, *Conus* spp, *Lambis* sp and *Tridacna* sp are seen at random on the sandy bottom.

**Sector II:** This sector extends from the passenger jetty on the south to the north eastern corner of the islands. The beach is sandy. The lagoon bottom is mostly sandy. The mid lagoon is very deep. Massive blocks of corals rising from the deep and reaching 1-2 m below the water level are seen here and there. Faunistic richness of the area is evident here. Solitary corals *Fungia* sp, *Lambis* spp, *Conus* spp, *Cypraea* spp, *Tridacna* sp, holothurians and star fishes are seen in good numbers on the mounts. Sea weeds are totally absent.

In between sector I and II, Tinnakara and Parali islets are situated. The northern sides of these islets are facing lagoon and mostly sandy while the southern side is either covered by dead coral blocks of massive type or the reef commences from the beach head. There appears to be paucity of fauna and flora in the islet zones.

**Sector III:** This sector extends from the north eastern corner of the island to the south western corner. The beach of the island in this sector is hard with coral debris spread throughout the beach and also on the intertidal regions. It is devoid of any notable animal life. The lagoon adjacent to the beach is shallow covered with a wash of dead coral pieces. Some portions of the lagoon towards the reef is deep with coral mounts reaching 1-2 m below the water surface. *Lambis* sp, *Conus* spp, *Cypraea* spp, *Tridacna* sp and *Fungia* are found on the mounts. The reef flat on the lagoon side having the characteristic fauna such as *Cypraea* spp, *Tridacna* sp, *Conus* spp, *Drupa* sp and *Chama* sp. *Octopus* sp is also found in good numbers in the crevices of the dead corals.

**Sector IV:** This sector extends from the north-east corner of the island to the south west corner. The beach is sandy towards the south, west and of dead corals mixed towards the northwest beach. The mid lagoon is sandy. A sand mount is located off this sector in the mid lagoon where sea weeds such as *Gelidiella* spp, *Gracilaria* sp, *Turbinaria* sp are found in heaps having been washed ashore amidst broken bits of branching corals. Sea gulls in hundreds are found resting on the sand mount. *Lambis* sp is found in good numbers in the sandy lagoon. Large numbers of the sea turtle *Erytmochelys imbricata* in group of 5-7 are found moving about in the lagoon on the eastern

side of the islands. Fishes such as *Zanclus cornutus*, *Holocentrus* sp, *Callyodon* sp, Gobids, *Apogon* sp, *Platex* sp, *Amphiprion* sp, *Chaetodon* spp, *Epinephelus* sp, *Chromis* sp are found hovering around coral growths in the northern part of the lagoon.

#### AMINI

**Sector I:** This sector starting on the middle of the eastern shore extends upto the southern tip of the island. The entire beach is sandy in nature. The reef flat in this zone is more of rocky bottom with broken dead coral bits. At the extreme south eastern side of this zone, the depth of water is 2 m during low tide when the reef edge is exposed. The bottom is more sandy in nature with good growth of sea grass. Here a good population of echinoderms belonging to the species *Holothuria (microthela) nobilis* are observed. On the other areas the entire reef flat is exposed during low tide. The reef edge lies at about 200 m from shore line and is steep.

**Sector II:** This sector covers the central point of the eastern shore to northern most tip of this island. The shore line is generally rocky in nature except on extreme north. The extent of reef flat is 10 m from the shore and during low tide about 25 cm of water is retained. The bottom of the reef flat constituted mainly of dead coral bits and reef edge is composed of big dead coral boulders. The observations made during low tide in this area revealed the presence of mostly intertidal molluscs such as *Conus chaldaeus*, *C. zonatus*, *Lambis truncatus* *Vasum ceramicus* and *Tricardium magnum*.

**Sector III:** This sector starts from the western side of the jetty and extends upto the southern tip of island. This area occupies half of the lagoon. At the jetty the depth of the water is about 3 m. The bottom is mostly sandy and in some places it is hard. Damage done to the fauna and flora due to dredging is evident in this area. On the southern side, the shore is sandy and the lagoon is partly exposed during low tide. The reef flat lies about 500 m away from shore line and constituted mainly of small dead coral stones. During high tide the lagoon retains 2 m of water and in some places big coral blocks of 1 m height were seen alive. Branching corals are few in numbers. The fishermen here have constructed the fish aggregating device and they catch fishes during low tide.

The bottom is mainly sandy and in some places it is firm.

*Sector IV*: This sector begins from the jetty and extends upto the northern end of the island. The beach is mainly sandy and in the lowest low tide mark level of the extreme north the bottom is composed of hard sand stone. The sand deposition is high inside the lagoon and during low tide substratum gets fully exposed. Water retention is noticed in exposed areas where coral fishes and intertidal molluscs occur in few numbers. The giant clam *Tridacna* sp occurs sparsely in this region. At the northern most point the bottom of the lagoon is sandy. It is 3 m deep during low tide. At the bottom fine block corals belonging to the genus *Porites* have grown to a height of 50 cm and branching corals to a height of 20 cm. A rich growth of sea grass is seen in this region harbouring quite a good number of holothurians.

#### KADMAT

*Sector I*: This sector starts from the middle region of the eastern shore and extends upto the southern end. The entire shoreline is sandy. Sea erosion is noticed at some places. The bottom of the reef flat is hard, interspersed with dead coral stones. At the reef edge huge dead coral stones are seen. At the extreme southern point of the island's eastern shore, the reef flat extends to a distance of about 500 m from the shore line. The depth of the water during low tide is 2m. New colonisation of corals was evident on the sandy bottom. The water pool occupies an area 300 X 400 m. sq.

*Sector II*: This sector commences from the middle region of the eastern side and extends upto the northern end of the island. The reef flat possess a hard substratum and about 20 cm of water is retained during low tide. The bottom components consisted mainly of dead coral bits and thick growth of algae are seen on these coral bits. Pearl oyster spat are found attached on the algae (4/ m<sup>2</sup>). *Conus* sp, *Strombus* sp and *Littorina* sp are predominantly seen. The extreme northern end of the island is made up of coral boulders and exposed during low tide.

*Sector III*: This sector extends on the western shore from the jetty to northern end of the island. At the jetty, lagoon is 2 m deep during low

tide. The bottom is sandy. At the northern side of the lagoon the depth is about 2 m where huge block corals are found. At a point just west to the jetty area many species of branching corals occur. Pearl oyster spat are found attached to dead corals. Different species of algae are observed. The giant clam *Tridacna* sp are found attached in block corals

*Sector IV*: This sector begins from the jetty and extends upto the end of the southern side. The depth of the lagoon is 1 m during low tide. The bottom is sandy and a few patches of live branching corals are seen in this region. Large shoals of bait fishes are common. At the extreme southern end of this lagoon live block corals are found. The gastropods are well represented by *Conus* sp and *Strombus* sp. Holothurians occur in moderate numbers.

#### KILTAN

*Sector I*: This sector starts on the middle of the eastern shore of the island and extends upto the southern end. Generally the beach is sandy and the reef flat rocky. Since no water is retained during low tide no molluscs could be seen. At the extreme southern end accumulation of dead corals are seen along the shore line.

*Sector II*: This sector is from the eastern shore's middle point to the northern end of the island. The entire shoreline is made up of dead coral bits. The reef flat extends for about 10 m from shore line. Water is not retained during low tide and hence no important molluscs are seen in this area. At the reef edge profuse growth of algae are observed and beyond the ridge the depth is more than 10 m.

*Sector III*: This area extends from the jetty of the northern end of the island on western shore. Generally the shore line is sandy and at the extreme northern end the shore is rocky which is formed of sand stones. The lagoon extends 0.5 km from the shore line and the bottom is sandy. The water is very clear. In this region the gastropod molluscs and echinoderms are very common.

*Sector IV*: This sector extends from the jetty area towards the southern end of the island's western shore. The shore line is generally sandy and the lagoon begins at the extreme south.

The bottom of the lagoon is very hard. Live block corals, holothurians and echinoderms are the main occupants of this area. Small sized *Tridacna* sp (less than 20 mm) are also present. Small sized *Conus* sp and *Cypraea* sp are also seen.

#### BITRA

**Sector I:** This sector commences from the north west tip of the island where the beach and the intertidal regions are strewn with bits of broken corals and shingles to the passenger jetty which is situated in the middle of the island. The beach is sandy throughout. The intertidal region is also sandy but intermingled with pieces of dead corals. The lagoon is shallow and sandy towards the shore but becomes deeper in the middle. Here and there mounts of dead corals are seen projecting from deep waters. Dead corals and broken pieces of corals are found spread over the bottom of the mid lagoon, wherever it is shallow. Fresh coral growths are seen on the coral flat and also on the dead coral beds towards the reef flat. The most characteristic fauna found on the coral formations are holothurians, *Fungia* sp, *Lambis* sp, *Drupa*, *Conus* spp, *Cypraea* spp, *Trochus* spp and *Tridacna* sp. Moderate growth of sea weed like *Turbinaria* sp is noticed in these regions. Fishes such as *Acanthurus* sp, *Epinephelus* sp, scarids, Anemone fishes, *Holocentrus* sp, *Chaetodon* spp upeneids, *Chromis* spp, *Amphiprion* spp, leather jacket, *Abudofduf*, *Platex* sp, sharks, *Caranx* spp and *Lethrinus* spp are found inhabiting the shallow areas towards the lagoon side of the reef flat.

**Sector II:** This sector commences from the passenger jetty in the north to the heavily eroded southern tip. The beach is sandy and the lagoon towards the shore is shallow with pieces of dead corals spread through the breadth of the shallow bottom. As in sector 1, the middle lagoon is deep with projecting coral mounts. Holothurians star fishes, *Fungia* sp, *Haliotis* sp, *Conus* spp, *Tridacna* sp and a few pearl oysters are collected from the coral mounts and the shallow coralline beds. Almost all the fishes present in sector 1 are also characteristic of this region.

A sand mount exposed during low tide is seen on the southern border of the lagoon very close to the reef flat with sea gulls in hundreds resting on it.

#### CHETLAT

Of all the lagoons of the islands surveyed the Chetlat lagoon with rich fauna and flora is undisturbed.

**Sector I:** This sector extends from middle shore to southern end on the eastern side of the island. The extent of reef flat is about 8-10 m along the shore. The sandy shore has a gentle slope which is periodically exposed during low tide. *Littorina* sp and *Nasa* sp are abundant in some places on the shore. At the extreme southern end the shore line is made up of dead corals and hard sand rocks which acts as a natural barrier and prevents sea erosion.

**Sector II:** This sector spreads from middle shore to northern end of the island. The entire shore is sandy except the middle point where some hard sand rocks are found intermittently. The intertidal reef flat possess populations of algae and gastropods. The near shore at the northern end is sandy with dead coral bits. The fauna are less here due to periodic exposure during low tide.

**Sector III:** This sector lies on the western side extending from the middle shore to the northern end of the island. The shore line is entirely sandy. Profuse growth of live corals are seen all along 2 m depth towards the lagoon side. Occurrence of pearl oysters of the size range 10-15 mm are seen on dead corals at a density of 1/10 m<sup>2</sup> and *Tridacna* sp at a density of 1/20 m<sup>2</sup>. Numerous echinoderms are also recorded in this sector.

**Sector IV:** The extension of the sector is between the middle point and the southern end in the western side. The nature of bottom is sandy but on the southern end it is hard with dead corals. Sea grass are seen throughout the sector along with gastropods such as *Cypraea* sp, *Conus* sp, *Nasa*, sp and *Vasum* sp. Echinoderms are seen in good numbers. The width of the southern most part of the island is about 10 m and lies in close proximity to deep open sea. The reef flat with dead coral boulders extends upto a width of 15 m along the shore and is exposed during low tide. On the western side the beach shows gentle slope and within a distance of 10 m a depth of about 15 m is reached. The bottom is rocky and it consists of live and dead coral blocks.

REMARKS

Although the present underwater observation in the lagoon areas of Lakshadweep islands are by no means exhaustive, the studies have brought out a few interesting features. A perusal of the catalogue of different species of marine life collected and documented in Tables 1 to 12 would indicate the diversity of the species composition of fishes, molluscs, and corals. Many of these species are commercially valuable from the point of view of ornamental fish trade, conchologist collection and industrial purpose. The scope for a national policy of exploitation appears bright. But one disturbing aspect witnessed in different sectors of the lagoon areas of the islands visited is the scenario of heaps of dead coral bits, decaying coral reef portions and the sand-silt accumulation of considerable extent. The observations on the faunistic feature of Lakshadweep islands published by Gardiner (1903-1906) do not indicate any silt accumulation in the reef area. Perhaps this happening may be of recent origin.

TABLE 1

Distribution of important fauna and flora in the lagoon of Minicoy.

Name of fauna and flora	Sector			
	I	II	III	IV
<i>Echinoderms</i>				
<i>Holothuria</i> sp.	—	—	x	—
<i>Molluscs</i>				
<i>Lucina</i> sp.	—	—	—	—
<i>Tridacna</i> sp.	x	—	x	x
<i>Corals</i>				
<i>Acropora</i> spp.	x	x	x	x
<i>A. Formosa</i> sp.	x	x	—	x
<i>Porites</i> spp.	x	x	x	x
<i>Algae</i>				
<i>Cymodocea</i> sp.	—	—	—	—

- Abundant
- 8 - Common
- x - Present
- Nil

TABLE 2

Distribution of important fauna and flora in the lagoon of Kalpeni.

Name of Fauna and Flora	Sector			
	I	II	III	IV
<i>Echinoderms</i>				
<i>Linckia</i> sp.	—	x	x	—
<i>Acanthaster planci</i>	x	—	—	—
<i>Ophiocoma</i> sp.	x	—	—	—
<i>Bohadschia</i> sp.	—	x	—	—
<i>Actinopyga</i> sp.	—	0	x	x
<i>Molluscs:</i>				
<i>Pinctada sugillata</i>	x	—	x	—
<i>Tridacna</i> sp.	0	0	0	0
<i>Tellina idae</i>	8	—	—	—
<i>Trochus</i> sp.	—	x	—	—
<i>Cyprea</i> sp.	—	x	0	—
<i>Corals:</i>				
<i>Acropora</i> spp.	x	0	0	0
<i>Fungia</i> sp.	—	x	—	—
<i>Porites</i> spp.	x	0	0	0
<i>Helopora</i> sp.	—	x	—	—
<i>Algae:</i>				
<i>Enteromorpha</i> sp.	x	—	—	0
<i>Halimeda</i> sp.	x	x	x	x
<i>Codium</i> sp.	x	—	—	0
<i>Caulerpa</i> sp.	x	0	—	0
<i>Turbinaria</i> sp.	x	—	0	0
<i>Gracilaria</i> sp.	0	x	x	x
<i>Gelidium</i> sp.	—	x	x	—
<i>Cymodocea</i> sp.	x	x	x	0

- 8 - Abundant
- 0 - Common
- x - Present
- Nil

Table: 3

Distribution of important fauna and flora in the lagoon of Suheli paar.

Name of Fauna and Flora	Sector			
	I	II	III	IV
<i>Echinoderms</i>				
<i>Holothuria</i> sp.	x	—	—	—
<i>Molluscs</i>				
<i>Pinctada sugillata</i>	x	—	—	—
<i>Tridacna</i> sp.	0	0	0	0
<i>Mesodesma</i> sp.	8	8	—	—

<i>Conus</i> spp.	x	—	—	—
<i>Lambis</i> sp.	x	—	—	—
<b>Corals</b>				
<i>Acropora</i> spp.	0	0	0	0
<i>Porites</i> spp.	0	0	0	0
<i>Fungia</i> sp.	x	—	x	—
<i>Heliopora</i> sp.	x	—	—	—
<b>Algae</b>				
<i>Chaetomorpha</i> sp.	x	—	—	—
<i>Halimeda</i> sp.	x	—	—	—
<i>Caulerpa</i> sp.	x	x	x	x
<i>Turbinaria</i> sp.	x	0	x	x
<i>Sargassum</i> sp.	x	—	—	—
<i>Padina</i> sp.	x	x	x	x
<b>Fishes</b>				
<i>Ostorhynchus</i> sp.	x	—	—	—
<i>Rhinecanthus</i> sp.	x	—	—	—
<i>Dascyllus</i> sp.	x	—	—	—
<i>Labroides dimidiatus</i>	x	x	—	—
<i>Acanthurus</i> sp.	x	—	—	—

8 - Abundant  
0 - Common  
x - Present  
-- Nil

Table 4

*Distribution of Important fauna and flora in the lagoon of Kavaratti.*

Name of Fauna and Flora	Sector			
	I	II	III	IV
<b>Echinoderm</b>				
<i>Holothuria cineracens</i>	—	x	x	—
<i>Holothuria atra</i>	x	x	x	—
<b>Molluscs</b>				
<i>Tridacna</i> sp.	0	x	—	x
<i>Mesodesma</i> sp.	—	—	x	—
<i>Conus</i> sp.	x	—	—	—
<i>Lambis truncate</i>	—	—	—	—
<i>Trochus</i> sp.	—	—	x	—
<i>Turbo</i> spp.	—	—	x	x
<i>Cyprea</i> spp.	x	—	x	x
<i>Octopus</i> sp.	—	—	x	—
<b>Corals</b>				
<i>Acropora formosa</i>	x	0	0	x
<i>Acropora aspera</i>	—	—	x	—
<i>Acropora teres</i>	x	x	x	x
<i>Acropora hyacinthus</i>	—	x	—	—
<i>Porites</i> spp.	0	x	x	x
<i>Fungia</i> sp.	—	—	x	x

<b>Algae</b>				
<i>Halimeda</i> sp.	—	—	—	x
<i>Caulerpa</i> sp.	—	—	—	x
<i>Trubinaria</i> sp.	x	x	x	—
<i>Sargassum</i> sp.	—	—	—	x
<i>Padina</i> sp.	—	x	x	—
<i>Gracilaria edulis</i>	x	—	x	—
<i>Laurencia</i> sp.	—	—	—	x
<i>Gelidella acerosa</i>	x	x	x	x
<i>Cymodocea</i> sp.	x	x	—	—
8 - Abundant				
0 - Common				
x - Present				
-- Nil				

TABLE: 5

*Distribution of Important fauna and flora occurring around Androth.*

Name of fauna and flora	Sector			
	I	II	III	IV
<b>Echinoderms:</b>				
<i>Ophiocoma</i> spp.	x	—	—	—
<i>Echinothrix calamaris</i>	x	—	—	—
<i>Echinothrix diodema</i>	—	x	—	—
<i>Echinometra</i> sp.	—	x	—	—
<b>Molluscs:</b>				
<i>Modiolus</i> sp.	x	x	—	x
<i>Pinctada sugillata</i>	x	x	—	x
<i>Lambis</i> sp.	x	—	—	—
<b>Corals:</b>				
<i>Acropora</i> spp.	0	0	0	0
<i>Porites</i> spp.	0	0	0	0
<i>Fungia</i> sp.	x	x	—	—
<b>Algae:</b>				
<i>Padina</i> sp.	—	—	x	—
<i>Turbinaria</i> sp.	x	x	x	—
<i>Gelidium</i> sp.	x	x	—	—

8 - Abundant  
0 - Common  
x - Present  
-- Nil

TABLE: 6

*Distribution of Important fauna and flora in the lagoon of Agathi*

Name of Fauna and Flora	Sector		
	I	II	III
<b>Echinoderms</b>			
<i>Holothuria</i> sp.	8	—	x

<i>Star fish</i>	0	—	—
<i>Brittle star</i>	x	—	—
<i>Sea urchin</i>	x	—	—
<i>Molluscs</i>			
<i>Tridacna</i> sp.	0	8	8
<i>Lambis</i> spp.	8	—	x
<i>Conus</i> spp.	8	—	x
<i>Cyprea</i> spp.	0	—	x
<i>Octopus</i> sp.	x	—	x
<i>Coelenterates (Corals)</i>			
<i>Sea anemone</i>	x	—	x
<i>Acropora</i> spp.	0	0	0
<i>Fungia</i>	—	8	0
<i>Porites</i> sp.	0	8	8
<i>Algae</i>			
<i>Turbinaria</i> sp.	x	—	—
<i>Gracilaria</i> sp.	x	—	—
<i>Cymodocea</i> sp.	—	8	—
<i>Fishes</i>			
<i>Grammistes</i> sp.	—	—	x
<i>Upeneus</i> sp.	—	—	x
<i>Chaetodon</i> sp.	x	—	x
<i>Amphiprion</i> sp.	x	—	x
<i>Blennids</i>	x	—	x
<i>Acanthurus</i> sp.	x	—	x
<i>Canthigastor</i> sp.	x	—	x
<i>Chromis</i> sp.	x	—	x
<i>Platax</i> sp.	x	—	x
<i>Apogon</i> sp.	x	—	x
<i>Abudefduf</i> sp.	—	—	x
<i>Balistes</i> sp.	—	—	x
<i>Callyodon</i> sp.	x	—	x
8 - Abundant			
0 - Common			
x - Present			
— - Nil			

TABLE: 7

Distribution of important fauna and flora in the lagoon of Bangaram.

Name of Fauna and Flora	Sector			
	I	II	III	IV
<i>Echinoderms</i>				
<i>Holothurian</i>	x	x	—	—
<i>Star fish</i>	x	x	—	—
<i>Mollusc</i>				
<i>Chama</i> sp.	—	—	x	—
<i>Tridacna</i>	x	x	x	—
<i>Conus</i> spp.	x	x	x	—
<i>Lambis</i> spp.	x	x	x	0
<i>Cypree</i> spp.	—	x	x	—

<i>Drupa</i> sp.	—	—	0	—
<i>Octopus</i> sp.	—	—	0	—
<i>Corals</i>				
<i>Acropora</i> sp.	—	x	x	—
<i>Porites</i>	—	x	x	—
<i>Algae</i>				
<i>Turbinaria</i> sp.	x	—	—	x
<i>Gracilaria</i> sp.	x	—	—	x
<i>Gelidiella</i> sp.	—	—	—	—
<i>Fishes</i>				
<i>Chaetodon</i> sp.	—	—	—	x
<i>Amphiprion</i> sp.	—	—	—	x
<i>Gobids</i>	—	—	—	x
<i>Chromis</i> sp.	—	—	—	x
<i>Platax</i> sp.	—	—	—	x
<i>Apogon</i> sp.	—	—	—	x
<i>Callyodon</i> sp.	—	—	—	x
<i>Zanclus</i> sp.	—	—	—	x
<i>Holocentrus</i> sp.	—	—	—	x
<i>Ehinephelus</i> sp.	—	—	—	x
8 - Abundant				
0 - Common				
x - Present				
— - Nil				

TABLE: 8

Distribution of important fauna and flora in the lagoon of Amint.

Name of Fauna and Flora	Sector			
	I	II	III	IV
<i>Echinoderm</i>				
<i>Holothuria at a</i>	8	x	x	0
<i>Holothuria</i> sp.	x	x	x	0
<i>Molluscs</i>				
<i>Pinctada</i> sp.	—	—	—	—
<i>Crassostrea</i> sp.	—	—	x	—
<i>Tridacna</i> sp.	—	x	x	x
<i>Mesodesma</i> sp.	x	—	x	x
<i>Conus</i> spp.	x	x	0	x
<i>Lambis</i> sp.	x	x	x	—
<i>Trochus</i> sp.	—	—	x	—
<i>Cyprea</i> sp.	—	—	0	x
<i>Nasa</i> sp.	x	—	0	x
<i>Vasum</i> sp.	x	x	0	—
<i>Octopus</i> sp.	x	x	0	—
<i>Corals</i>				
<i>Acropora</i> spp.	—	x	x	—
<i>Acropora formosa</i>	—	x	x	—
<i>Actopora aspera</i>	—	—	x	—
<i>Fungia</i> sp.	x	—	x	x
<i>Porites</i> spp.	x	x	x	x



Algae				
<i>Halimeda</i> sp.	x	x	x	x
<i>Caulerpa</i> sp.	x	—	x	x
<i>Turbinaria</i> sp.	—	—	—	—
<i>Sargassum</i> sp.	x	—	x	x
<i>Padina</i> sp.	x	x	x	x
<i>Gracilaria</i> sp.	—	—	x	x

8 - Abundant  
 0 - Common  
 x - Present  
 - - Nil

TABLE: 9

Sector

*Distribution of important fauna and flora in the lagoon of Kadmat.*

Name of Fauna and flora	I	II	III	IV
<i>Echinoderms</i>				
<i>Holothuria</i> sp.	x	x	x	x
<i>Holothuria atra</i>	—	x	x	x
<i>Molluscs</i>				
<i>Pinctada</i> sp.	—	x	x	x
<i>Crassostrea</i> sp.	x	x	x	x
<i>Tridacna</i> sp.	—	x	x	x
<i>Mesodesma</i> sp.	—	—	x	—
<i>Conus</i> spp.	x	x	0	0
<i>Lambis</i> sp.	x	x	0	0
<i>Trochus</i> sp.	—	x	x	—
<i>Cyprea</i> spp.	x	x	x	x
<i>Nasa</i> sp.	x	x	0	x
<i>Vasum</i> sp.	0	0	0	x
<i>Octopus</i> sp.	x	x	x	x
<i>Corals</i>				
<i>Acropora</i> sp.	—	x	x	—
<i>Acropora formosa</i>	—	—	x	x
<i>Acropora aspera</i>	—	x	—	—
<i>Fungia</i>	x	x	x	x
<i>Porites</i> spp.	x	x	0	x
<i>Algae</i>				
<i>Halimeda</i> sp.	x	x	—	—
<i>Caulerpa</i> sp.	x	—	0	—
<i>Turbinaria</i> sp.	—	—	x	—
<i>Sargassum</i> sp.	x	—	—	—
<i>Padina</i> sp.	x	x	0	x
<i>Gracilaria</i> sp.	—	—	0	x

8 - Abundant  
 0 - Common  
 x - Present  
 - - Nil

TABLE: 10

*Distribution of important fauna and flora in the lagoon of Kiltan.*

Name of fauna and flora	Sector			
	I	II	III	IV
<i>Echinoderms</i>				
<i>Holothuria</i> spp.	x	x	0	0
<i>Holothuria atra</i>	—	x	0	x
<i>Molluscs</i>				
<i>Pinctada</i> sp.	x	x	x	—
<i>Crassostrea</i> sp.	x	—	x	—
<i>Tridacna</i> sp.	—	x	x	x
<i>Mesodesma</i> sp.	—	x	0	x
<i>Conus</i> spp.	0	x	0	x
<i>Lambis</i> sp.	x	0	0	x
<i>Trochus</i> sp.	x	—	0	—
<i>Cyprea</i> spp.	x	x	0	x
<i>Nasa</i> sp.	0	0	x	0
<i>Vasum</i> sp.	0	0	x	x
<i>Octopus</i> sp.	x	x	x	x
<i>Corals</i>				
<i>Acropora</i> spp.	—	x	x	—
<i>Acropora formosa</i>	—	x	x	x
<i>Acropora aspera</i>	—	x	x	x
<i>Porites</i> sp.	0	0	0	x
<i>Fungia</i> sp.	x	—	x	x
<i>Algae</i>				
<i>Halimeda</i> sp.	—	x	—	—
<i>Caulerpa</i> sp.	x	x	0	x
<i>Turbinaria</i> sp.	0	x	x	—
<i>Sargassum</i> sp.	0	—	—	—
<i>Padina</i> sp.	0	x	x	x
<i>Gracilaria</i> sp.	—	—	0	x

8 - Abundant  
 0 - Common  
 x - Present  
 - - Nil

TABLE: 11

*Distribution of important fauna and flora in the lagoon of Bitra*

Name of fauna and flora	Sector	
	I	II
<i>Echinoderms</i>		
<i>Holothurian</i>	x	x
<i>Star fish</i>	x	x
<i>Molluscs</i>		
<i>Pearl oysters</i>	—	x

<i>Tridacna</i> sp.	x	x
<i>Conus</i> spp.	x	x
<i>Lambis</i> sp.	x	x
<i>Trochus</i> spp.	x	x
<i>Cypraea</i> spp.	x	x
<i>Drupa</i> sp.	x	x
<i>Haliotis</i> sp.	--	x
<i>Coelenterates/Corals</i>		
<i>Sea anemones</i>	x	—
<i>Acropora</i> spp.	x	x
<i>Fungia</i> sp.	x	x
<i>Porites</i> sp.	x	x
<i>Algae</i>		
<i>Turbinaria</i> sp.	x	—
<i>Fishes</i>		
<i>Upeneus</i> sp.	x	x
<i>Chaetodon</i> sp.	x	x
<i>Amphiprion</i> sp.	x	x
<i>Acanthurus</i> sp.	x	x
<i>Chromis</i> sp.	x	x
<i>Platax</i> sp.	x	x
<i>Abudefduf</i> sp.	x	x
<i>Balistis</i> sp.	x	x
<i>Holocentrus</i> sp.	x	x
<i>Ephinephelus</i> sp.	x	x
<i>Lethrinus</i> sp.	x	x
<i>Caranx</i> sp.	x	x
<i>Scads</i>	x	x
<i>Anemone fishes</i>	x	x
<i>Sharks</i>	x	x

8 - Abundant  
0 - Common  
x - Present  
-- Nil

TABLE: 12

*Distribution of important fauna and flora in the lagoon of Chetlet.*

Name of fauna and flora	Sector			
	I	II	III	IV
<i>Echinoderms</i>				
<i>Holothuria</i> sp.	x	—	0	0
<i>Holothuria atra</i>	—	—	0	0
<i>Molluscs</i>				
<i>Pinctada</i> sp.	—	—	x	x
<i>Crossostrea</i> sp.	—	—	x	x
<i>Tridacna</i> sp.	—	—	0	0
<i>Mesodisma</i> sp.	x	—	0	x
<i>Conus</i> spp.	x	x	0	0
<i>Lambis</i> sp.	x	x	x	0
<i>Trochus</i> sp.	—	—	0	0
<i>Cypraea</i> sp.	x	x	0	x

<i>Nasa</i> sp.	x	x	0	0
<i>Vasum</i> sp.	x	x	x	0
<i>Octopus</i> sp.	x	0	x	x
<i>Corals</i>				
<i>Acropora</i> spp.	x	—	0	x
<i>Acropora formosa</i>	—	—	x	x
<i>Acropora aspera</i>	—	—	0	x
<i>Fungia</i> sp.	x	x	0	0
<i>Porites</i> sp.	x	x	0	0
<i>Algae</i>				
<i>Hahmeda</i> sp.	—	—	x	x
<i>Caulerpa</i> sp.	x	—	x	0
<i>Turbinaria</i> sp.	—	x	x	0
<i>Sargassum</i> sp.	—	x	x	x
<i>Padina</i> sp.	x	x	0	x
<i>Gracilaria</i> sp.	x	—	x	x

8 - Abundant  
0 - Common  
x - Present  
-- Nil

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