Journal of Aquatic Biology & Fisheries, Vol. 2(1) 2014: 304-306

INTERTIDAL ICHTHYOFAUNAL DIVERSITY OF ANDROTH ISLAND, LAKSHADWEEP, INDIA – A CALL FOR DEVELOPING CULTURE BASED FISHERY

Mohammed Noushad, K.[1,2], Sirajudheen, T. K.[2]* and Idrees Babu, K.K.[1,3]

[1]Dept. of Aquaculture & Fishery Microbiology, MES Ponnani College, Ponnani, Kerala.
[2]Dept. of Aquaculture, P.M Sayeed Calicut University centre, Androth, Lakshadweep.
[3]Dept. of Science and Technology, Kavaratti, Lakshadweep.

**Corresponding author: sirajaqb@gmail.com*

Received on: 16.06.2013, accepted on: 11.11.2013

Abstract: The fish diversity of Androth, the largest island among Lakshadweep Archipelago, has not yet been surveyed or documented. Since Androth showed characteristics of a mature island, without a prominent lagoon area, the researchers have not explored the island for its fishery resources. However, the Androth Island has vast intertidal area around it, which is exposed on all the sides. Therefore, an attempt has been made to explore the intertidal ichthyofaunal diversity around Androth atoll during September to November 2012 using the Line Intercept Transect method. The survey revealed the presence of 76 species of fishes categorized under two orders, 14 families and 34 genera. The species-rich fish families were Labridae (Wrasses, 18 species), Pomacentridae(Damsel fishes, 15 species), Acanthuridae (Surgeon fishes, 11 species), and Chaetodontidae (Butterfly fishes, 7 species). The butterfly fishes and surgeon fishes represented by the genera *Chaetodon*and *Acanthurus* respectively, were the most diverse fish genera with 7 species each followed by damsel fishes of genus *Abudefduf* and wrasses of genus *Halichoeres*(5 species each). The leading fact to this study was the suggestions from local fishermen that the intertidal diversity is in a state of diminishing in Androth Island. Most of these species are listed as potential fishes in international marine ornamental trade. Therefore, the study indicates the need for developing a marine ornamental fish hatchery in the region in order to ensure the conservation and sustainable utilization of resources by promoting culture based fishery.

Key words: Fish diversity, Intertidal, island, Lakshadweep

Knowledge of species composition in an area orecosystem is a fundamental prerequisite for subsequentwork in evolutionary biology, ecology, biogeographyand conservation. Intertidal communities are plastic systems as they change continuously in composition and abundance oforganisms at several spatial and temporal scales (Dye, 1998; Menconi *et al*., 1999).The coastal ecosystems are facing ever increasing human pressures through fishing, recreational activities, demographic increase and consequences of global change (Karakassis and Hatziyanni, 2000; Harley *et al*., 2006).

Lakshadweep, the tiniest Union Territory of India is an archipelago comprising 36 Islands, situated in the Arabian Sea between 08° 00' N and 12° 30' N latitude and 71° 00' E and 74° 00' E longitude and at a distance of 220 - 440 km from the west coast of India. The lagoons and the surrounding waters and corals reefs are replete with a wide variety of flora and fauna. The coral reef ecosystems in the lagoons and intertidal waters surrounding Lakshadweep Islands are rich in fish diversity. It is clearly evident from the publications of Jones and Kumaran (1980) that the studies on the reef ichthyofauna of India are limited and began in the Lakshadweep group of islands. Later many studies such as those ofPillai and Jasmine (1989),Murty (2002), etcdescribed the coral reef fish diversity of Lakshadweep islands.

There is general consensus that the living resources in and around the Islands hold great potential for exploitation to a high magnitude. But from a fishery resource point of view the

Table 1. Classified list of intertidal fishes around Androth Island, Lakshadweep

Sl. No.	Species
1	**Perciformes**
	Serranidae
	Epinephelus merra
2	*Epinephelus quoyanus*
3	**Lutjanidae**
	Lutjanus gibbus
4	*Lutjanus fulvus*
5	**Mullidae**
	Parupeneus barberinus
6	*Parupeneus bifasciatus*
7	*Parupeneus cyclostomus*
8	*P murcronema*
9	**Chaetodontidae**
	Chaetodon auriga
10	*Chaetodon citrinellus*
11	*Chaetodon meyeri*
12	*Chaetodon trifasciatus*
13	*Chaetodon decussatus*
14	*Chaetodon xcanthocephalus*
15	*Chaetodon vagabundus*
16	**Pomacentridae**
	Abudefduf vaigensis
17	*Abudefduf sexfasciatus*
18	*Abudefduf septemfasciatus*
19	*Abudefduf dutvapyiensis*
20	*Abudefduf xanthosoma*
21	*Dascyllus aruanus*
22	*Dascyllus reticulatus*
23	*Dascyllus trimaculatus*
24	*Chrysiptera leucopoma*
25	*Chrysiptera caeruleolineatus*
26	*Chrysiptera unimaculata*
27	*Chromis chysurus*
28	*Chromis simulates*
29	*Chromis caeruleus*
30	*Chromis nigrurus*
31	**Labridae**
	Gomphosus caeruleus (Dark Phase)
32	*Gomphosus caerulerrs (Green Phase)*
33	*Halichoeres hortulanus*
34	*Halichoeres argus*
35	*Halichoeres marginatus*
36	*Halichoeres melanurus( )*
37	*Halichoeres scapularis*
38	*Labroides dimidiatus*
39	*Novaculichthys taeniourus*
40	*Oxychelinius diagrammus*
41	*Stethojulis albovittata*
42	*Stethojulis trilineata*
43	*Stethojulis strigiventer*
44	*Thalassoma hardwicke*
45	*Thalassoma jansenii*
46	*Chelio inermis*
47	*Macropharyngodon meleagris*
48	*Hemigymnus fasciatus*
49	**Scaridae**
	Calotomus spinidens
50	*Scarus globiceps*
51	*Scarus schleyeli*
52	**Pinguipedidae**
	Parapercis hexophtalma
53	**Acanthuridae**
	Naso tuberosus
54	*Naso lituratus*
55	*Naso unicornis*
56	*Acanthurus dussumieri*
57	*Acanthurus lineatus*
58	*Acanthurus nigricauda*
59	*Acanthurus triostegus*
60	*Acanthurus leucosternon*
61	*Acanthurus matoides*
62	*Acanthurus xanthopterus*
63	*Ctenochaetus striatus*
64	**Apogonidae**
	Apogon cookii
65	**Zanclidae**
	Zanclus cornutus
66	**Tetradondiformes**
	Balistidae
	Balistapus undulatus
67	*Melichthys indicus*
68	*Rhinecanthus aculeatus*
69	*Rhinecanthus rectangulus*
70	*Abalistes stellatus*
71	**Ostraciidae**
	Ostraction meleagris
72	**Tetraodontidae**
	Arothron stellatus
73	*Arothron hispidus*
74	*Canthigaster solandri*
75	*Canthigaster bennethi*
76	*Canthigaster margaritutus*

Androth Island was not surveyed or investigated upon seriously till recently. Therefore, an attempt has been made to explore the intertidal ichthyofaunal diversity around Androth Island.

Androth Island, the largest among the Lakshadweep group of islands situatedbetween 10° 49' N latitude and 73° 41' E longitudeshowed characteristics of a mature island, with vast intertidal area around it and without a prominent lagoon.Androth is the nearest Island to mainland. The study was conducted during September to November 2012. Line Intercept Transect method was used to assess the intertidal fish diversity of Androth Island. A total number of 56 transacts

were lied in the whole intertidal area surrounding the island.

The survey revealed presence of 76 species of fishes categorized under two orders, 14 families and 34 genera (Table 1). The species-rich fish families were Labridae (Wrasses, 18 species), Pomacentridae(Damsel fishes, 15 species), Acanthuridae (Surgeon fishes, 11 species), and Chaetodontidae (Butterfly fishes, 7 species). The butterfly fishes and surgeon fishes represented by the genera *Chaetodon*and *Acanthurus* respectively, were the most diverse fish genera with 7 species each followed by damsel fishes of genus *Abudefduf* and wrasses of genus *Halichoeres* (5 species each). Since there is no previous information on the fish communities around AndrothIsland, time comparative studies are not possible.

The leading fact to this study was the suggestions from local fishermen that the intertidal diversity is in a state of diminishing in Androth Island. It is interesting that most of these species are listed as potential fishes in international marine ornamental trade (Wabnitz *et al.,* 2003). It is also found that breeding technology for many species such as damsel fishes has been developed in India (Madhu *et al*., 2010).So there are prospects for exploitation of a number of ornamental fishes and some of the ancillary resources in a limited way. But culture of some of these organisms in an organized manner in the lagoons of some of the islands will be worth trying.

World over, island ecosystems are critically threatened. Lakshadweep Islands are characterized by their small size and distance from the mainland shore. All these islands built of coral reefs, the world's most fragile and endangered ecosystems. Loss of healthy coral reefs due to human interventions will lead to elimination of primary sources of food, income and employment for thousands of people in these Islands as well as the extinction of many fascinating and beautiful marine species. Soit is recommended thatthe fish diversity associated with coral reef ecosystems of Lakshadweep Islands are to be protected. The study also indicates the potential and need for developing a hatchery in the region in order to ensure the conservation and sustainable utilization of resources by promoting culture based fishery.

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