DISTRIBUTION OF CORAL BORING BIVALVES ALONG THE INDIAN COASTS

ABSTRACT

In the present note 22 species of boring bivalves belonging to 11 genera have been recorded from Indian Coast. This information is mainly based on the collections from Mandapam southeast coast of India, Quilon, Minicoy and Andaman Islands, The list of species with their distribution in Indian Coast is also briefly discussed.

As early as 1903 Stanley Gardiner pointed out the importance of the destructive role of boring organisms in the disintegration of coral reefs and reef corals, in Maldives Islands and Minicoy. Later, Calman (1919) gave a general account of boring organisms cuasing destruction to submerged objects in tropical waters. Otter (1937) while studying the boring bivalves of the Great Barrier Reef has rightly pointed out that "a proper understanding of relationships between those organisms that build and protect reefs and those that aid, directly or indirectly, in their destruction is essential to the proper understanding of the whole". Though boring bivalves form one of the dominent reef dwelling animals causing considerable destruction to the reef systems of the seas around India, practically very little attempt has been hitherto made to study them. The coral reefs along the main land and the Islands of the Indian subcontinent act as protective barriers against sea erosion, in addition to their economic value as a source of calcium carbonate for industrial purposes. The boring bivalves play a very dominent role as biological agents in the destruction of this natural resource, and a proper study of them is very urgently needed to assess their destructive role.

Gravely (1941) Ray (1948), Satyamurthi (1956), Ganapathi and Nagabhushanam (1958), Kundu (1965) and Menon *et al.* (1967) have mentioned the occurrence of boring bivalves along the Indian coast and Appukuttan (in press) has presented a fairly comprehensive account on them mainly based on information obtained from the southeastern coast of India. The present note is an attempt to summarise the information on the subject, mainly obtained on the investigations from Mandapam in southeast India, Quilon, Minicoy and Andaman Islands.

To the present, a total of 22 species of boring bivalves has been recorded along the Indian coast, belonging to 11 genera and 6 families. Out of the 22 species 19 species of 11 genera are recorded from Mandapam and adjacent waters, 9 species of 5 genera from Minicoy, 10 species of 5 genera from Andamans and 4 species of 3 genera from Quilon, along the coast of Kerala. Kundu (1964) mentioned the occurrence of 5 species of 3 genera in the eastern coast of India. A single species of *Lithophaga* is recorded by Menon *et al.* (1967) from Goa. The largest number of species is known from Mandapam area where there are many fringing reefs with massive and ramose scleractinian corals. More intensive work is needed from other parts to assess the number of species as well as their abundance and the role they play in the distruction of the reefs.

The following is a list of species so far known to occur along the Indian coast. The locations from where they are known to occur along the coast are indicated in paranthesis after each species.

FAMILY MYTILIDAE

Genus **Lithophaga** (Bolten) Roding, 1798

Lithophaga nigra (d'Orbigny), 1845: (Gulf of Kutch, Quilon, Mandapam, Madras, Minicoy and Andaman Islands)

L. gracilis (Philippi), 1847: (Mandapam, Madras, Minicoy and Andaman Islands)
L. teres (Philippi, 1846: (Gulf of Kutch, Mandapam, Madras and Andaman Islands)
L. stramineus (Dunker), 1857: (Mandapam)
L. cumingiana (Reeve), 1857: (Madras)
L. levigata (Quoy and Gaimard, 1818: (Mandapam)
Lithophaga sp. : (Goa)

Genus **Botula** Morch, 1853

Botula cinnamomea (Lamarck), 1819: (Gulf of Kutch, Mandapam and Minicoy Island)

FAMILY VENERIDAE

Genus **Venurupis** Lamarck, 1818.

Venurupis macrophylla (Deshayes), 1853: (Mandapam and Andaman Islands)

FAMILY PETRICOLIDAE

Genus **Petricola** Lamarck, 1801

Petricola lithophaga (Retzius), 1787: (Mandapam, Minicoy and Andaman Islands)
P. divergens (Gmelin), 1790: (Mandapam, Minicoy and Andaman Islands)
P. monstrosa (Gmelin), 1791: (Andaman Islands)

FAMILY ALOIDAE

Genus **Aloides** Megrle von Mohlfeld, 1811

Aloides sulculosa (H. Adams), 1870: (Mandapam)

FAMILY GASTROCHAENIDAE

Genus **Gastrochaena** Spengler, 1783

Gastrochaena gigantea (Deshayes), 1830: (Quilon, Mandapam, Madras, Minicoy and Andaman Islands)
G. impressa (Deshayes), 1854: (Mandapam and Minicoy Islands)
G. apertissima (Deshayes), 1854: (Mandapam)

FAMILY PHOLADIDAE

Genus **Pholadidea** Turton, 1819

Pholadidea cheveyi Lamy, 1927: (Mandapam, Madras)

Genus **Panitella** Valenciennes, 1846

Panitella sp.: (Mandapam)

Genus **Parapholas** Conrad, 1848

Parapholas quadrizonata Spengler, 1792: (Mandapam)

Genus **Diplothyra** Tryon, 1862

Diplothyra sp.: (Mandapam)

Genus **Jouannetia** des Maulins, 1828

Jouannetia cumingii (Sowerby), 1849: (Gulf of Kutch, Quilon, Mandapam, Madras, Minicoy and Andaman Islands)
J. globosa (Quoy and Gaimard), 1835: (Gulf of Kutch, Quilon, Mandapam, Minicoy and Andaman Islands)

The distribution of 22 known species of coral boring bivalves in Indian waters is shown in paranthesis above. All the 22 species occur on the east coast while only 8 species are found on the west coast. All the 7 species of lithophags reported are known from east coast while only three species, *Lithophaga nigra, L. teres* and *Lithophaga* sp. are known from west coast. *L. stramineus* and *L. levigata* are known to occur only at Mandapam. *L. cumingiana* is recorded from Madras alone. *Botula cinnamomea* occur in both east coast and west coast and also in Andamans and Minicoy Islands, thus enjoy a wide distribution. *Venurupis macrophylla* known to occur only in east coast, and *Aloides sulculosa* is reported only from the reefs around Mandapam. Among Petricolids, *Petricola lithophaga* and *Petricola divergens* are reported from east coast as well as Minicoy and Andaman Islands while *P. monstrosa* is reported only from Andaman Islands. Of the three Gastrochaenids, *Gastrochaena gigantea* occur in both east and west coast where as a *G. impressa* is reported from east coast and Minicoy Island, *G. apertissima* is recorded from

Madras and Mandapam. All the pholadids are occuring in east coast but only *Jouannetia cumingii* and *J. globosa* are known to occurr in the west coast. *Pholadidea cheveyi, Diplothyra* sp. *Panitella* sp. and *Parapholas quadrizonata* are reported only from reefs around Mandapam.

Of all the boring forms mentioned here, members of the family Mytilidae, Petricolidae, Gastrochaenidae and Pholadidae are most effective borers and they are abundant in the reefs around Mandapam, Minicoy and Andaman Islands. *Lithophaga nigra, L. gracilis, L. teres, petricola lithophaga, Gastrochaena gigantea, Jouannetia cumingii, Pholadidea cheveyi* and *Paraphaolas quadrizonata* are found to be the most common species in the present collection. They occur in laige numbers and make deep burrows in the corals, causing considerable destruction to reef corals.

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