

CHECKLIST OF THE SHALLOW-WATER CORALS OF TRINIDAD

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ALTHOUGH there is an extensive series of publications on the corals of the Caribbean area, virtually nothing has been published on the corals of Trinidad. This is due partly to the fact that it has only been comparatively recently that marine biologists in Trinidad have addressed their attention to this group and to coral communities in the coastal waters of Trinidad. During the past five years, with the development of a marine biology programme in the Department of Biological Sciences, University of the West Indies, it has been possible to assemble representative collections of corals. This paper presents a checklist of those species which have so far been found.

Oceanographic conditions in coastal waters around Trinidad to a great extent determine the type of coral communities which may be found. Reef building corals or hermatypic corals require certain special conditions and they are generally found where temperatures range from 20 to 31 degrees celsius and their most prolific development is found at temperatures between 25 and 31 degrees celsius. Apart from temperature requirements, coral communities also require certain salinity ranges and, again, the most prolific developments may be found where conditions are close to open ocean conditions, with salinities in the region of 35 parts per thousand. In addition, reef building corals require high light intensities. This is because of the symbiotic relationship between zooxanthellae and the coral. Finally, reef building corals require water in which the rate of sedimentation is sufficiently low to preclude smothering of the organisms.

van Andel & Postma (1954) have shown that the waters of the Gulf of Paria are typically estuarine for most of the area. Other authors, Gade (1961), Fukuoka (1964) and Ryther et.al. (1967) have also shown that similar conditions, although to a lesser degree, also prevail in the coastal waters to the north, east, and south of Trinidad. As a consequence of such conditions existing, it is inevitable that the coral communities must be impoverished. Nevertheless, there may be found some coral community development, particularly where suitable substratum is found. Needless to say, as much of the sea bottom in coastal waters consists of mud, there is very little coral reef development in the Columbus Passage, the Gulf of Paria, and offshore along the East Coast. Along the North Coast, however, there are extensive areas of suitable substratum to be found, particularly along the cliffs and bays, and especially at Toco in the extreme north-east.

This checklist does not, in any way, attempt to give a means of identification of Trinidad corals. Readers will, however, find the following papers of some use in identifying Trinidad corals: Duarte Bello (1960), Lewis (1960), Almy & Carrion Torres (1963), Goreau & Welles (1967), Roos (1971). Roos's paper is superbly illustrated with black-and-white plates and is probably the most useful.

METHODS

Corals were collected either by snorkling or by use of SCUBA. Specimens were prepared by rinsing with fresh water under slight pressure and by subsequent bleaching with household bleach.

CHECKLIST

HYDROZOA

Milleporina
Milleporidae

1. *Millepora alcicornis* Linnaeus
(The common fire-coral. Extremely common in shallow water along the North Coast.)

Stylasterina
Stylasteridae

2. *Stylaster duchassaingii* Pourtales
(This hydro-coral has no common name and is found at depths of about 30 metres in the Bocas region.)

ANTHOZOA

Scleractinia
Pocilloporidae

3. *Madracis decactis* (Lyman)
(Uncommon in Trinidad but widely distributed throughout the West Indies. Sole specimen collected from dredged material off the East Coast).

4. *Madracis myriaster* Milne Edwards and Haime (An unusual coral and found at depths of more than 200 metres in various parts of the Caribbean. It is, however, extremely common at depths of about 30 metres in the Bocas region.)

5. *Madracis asperula* Milne Edwards and Haime (Uncommon and collected only at Macqueripe Bay.)

Acroporidae

6. *Acropora palmata* (Lamarck)
(A rare coral in Trinidad. Only two specimens have ever been collected. One at Macqueripe and one at Salybia in Toco.)

7. *Acropora prolifera* (Lamarck)
(This is a small stag-horn coral which is reasonably abundant at Salybia — Toco beyond the breakers.)

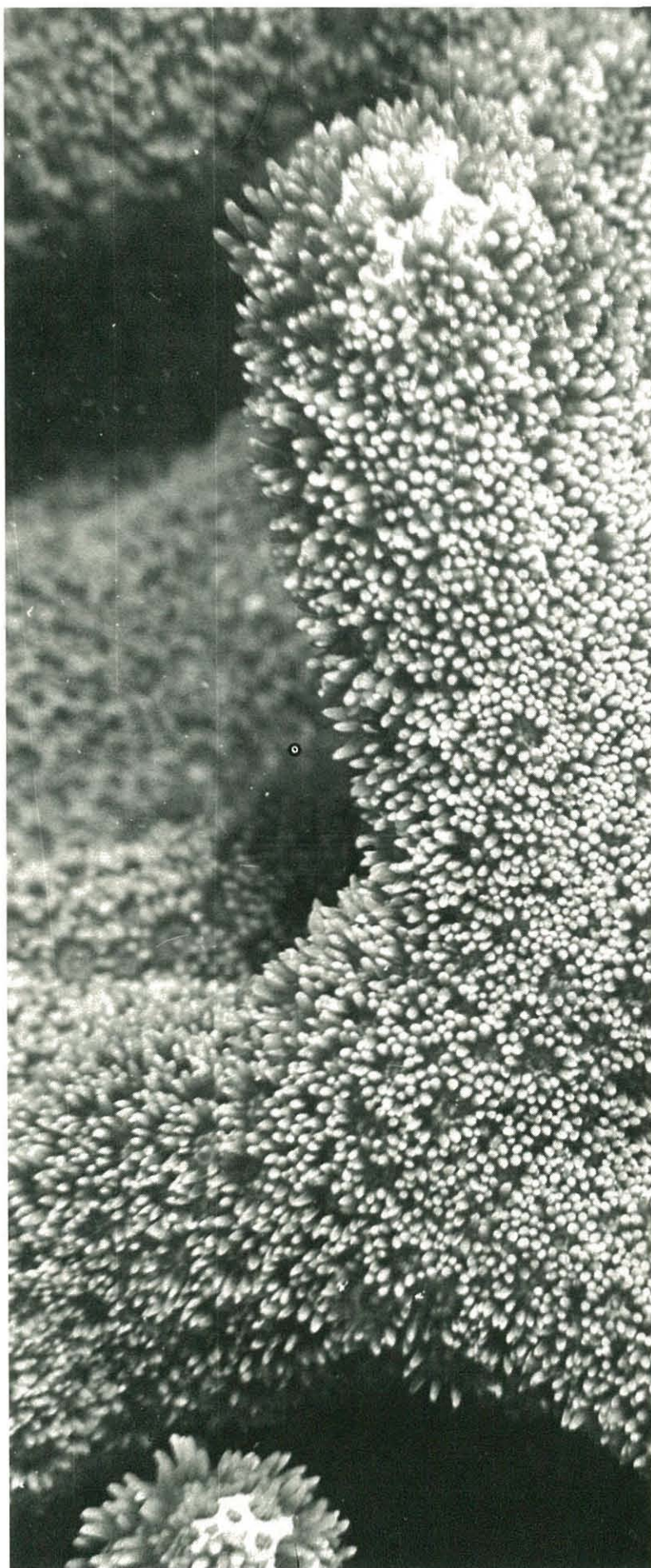
Agariciidae

8. *Agaricia agaricites* (Linnaeus).
(The finger-coral is extremely common around the islands of the Bocas and all along the North Coast of Trinidad. Its depth distribution is from surface to about ten metres. In shallow water, this growth form tends to be encrusting but at depths of about ten metres, it forms characteristic flattened plates.)

Siderastreidae

9. *Siderastrea siderea* (Ellis & Solander). (The larger of the starlet corals and is not particularly common although its distribution ranges from Scotland Bay around the North Coast to Toco. One specimen at Toco measured over three metres long by about one and a half metres high).

10. *Siderastrea radians* (Pallas).
(The smaller of the starlet corals and is extremely common as well as extremely widely distributed. It



Living specimen of *Porites porites* (Finger coral).



Poritidae

is found in shallow water around the Bocas islands and all along the North Coast. At Toco, at Galera Point, some corals may be found in tide pools five metres above sea level.)

11. *Porites porites* (Pallas)

(Probably the most obvious coral to be seen in shallow water in Trinidad and it is the only one which builds conspicuous reef frameworks. The Salybia reef at Toco consists almost entirely of this species.)

12 *Porites branneri* Rathbun

(A rare species in Trinidad.)

13. *Porites asteroides* Lesueur

(This species is common along the North Coast. It is particularly common at Salybia but it is absent from the Bocas islands.)

Faviidae

14. *Favia frugum* (Esper)

(Another extremely common coral species found in shallow water to depths of about five metres.)

15. *Diploria clivosa* (Ellis & Solander)

(This is one of the brain corals which may be found in most of the bays along the North Coast of Trinidad and also at Chacachacare. Growth form in Trinidad is typically flattened, encrusting plates which may measure up to one metre in diameter.)

16. *Diploria strigosa* (Dana)

(This brain coral is uncommon in Trinidad but it has been collected at Damian Bay and Salybia Bay.)

17. *Manicina areolata* (Linnaeus)

(This species is one of the few which grows unattached and is usually associated with turtle grass beds. Colonies may be found at Grand Fond Bay in Monas at depths of about 6 — 8 metres.)

18. *Colpolhyllia natans* (Houttyn)

(An extremely rare coral in Trinidad but one of the prominent reef builders in Tobago.)

19. *Cladocora arbuscula* (Lesueur)

(A rare coral in Trinidad collected by dredging off the north coast.)

20. *Montastraea annularis* (Ellis & Solander)

(One of the most important reef builders in the Caribbean but found only in the form of isolated boulders at various localities along the North Coast.)

21. *Montastraea cavernosa* (Linnaeus)

(Again, this is an important reef builder throughout the Caribbean, but has only been collected at Maracas Bay, La Fillette and Salybia.)

Rhizangiidae

22. *Astrangia solitaria* Lesueur

(This coral is not common in Trinidad.)

23. *Astrangia rathbuni* Vaughan

(This related species may be found

growing on stone and on molluscan shells and is extremely common. It is found at depths ranging from the surface to something in excess of safe limits for SCUBA diving.)

Oculinidae

24. *Oculina diffusa* Lamarck
(The ivory-coral is extremely common and abundant and there are some particularly prolific patches to be found in the Bocas area and particularly in the south-west of Scotland Bay. It is found also, in most bays along the north coast of Trinidad.)

Meandrinidae

25. *Dichocoenia stokesii* Milne Edwards & Haime (The star-coral is common in Maracas Bay, Las Cuevas and Fillette but has not been recorded at other localities in Trinidad.)

Mussidae

26. *Scolymia cubensis* Milne Edwards & Haime (The mushroom-coral is certainly one of the most startling corals to be seen in Trinidad. They are solitary and most specimens are in the form of a flattened disc, perhaps 5 — 10 cm in diameter. The colour in life is an iridescent green. Its distribution is widespread and it may be found in rocky areas at depths from the surface down to perhaps 20 metres.)

Caryophyllidae

27. *Paracyathus defilippi* Duchassaing & Michelotti (A rare solitary coral found at depths in excess of 30 metres in the Bocas area.)

Dendrophyllidae

28. *Dendrophyllia cornucopia* Poutales (A fairly common and abundant species found at depths in excess of thirty metres in the Bocas area.)
29. *Balanophyllia floridana* Poutales (A common solitary coral found at depths of below 20 metres in the Bocas area.)

SUMMARY

Generally, it has been found that reef-building corals are confined to the upper ten metres of water, wherever suitable substratum and environmental conditions may be found. It is thought that this limitation on the vertical distribution of corals is directly related to light intensity. Compared with other Caribbean islands, there is no doubt also, that there is a marked impoverishment of the coral fauna, with some major elements being absent. It has been found also, that the only area in which there has been any appreciable development of coral communities, is the North Coast. Commencing from the west at the islands of the Bocas, there is progressive enrichment of community composition moving towards the east, and the largest numbers of species are found at Toco. This is consistent with a salinity gradient extending from west to east. In the Gulf of Paria, the Columbus Passage, and in the close inshore waters along the East Coast, there is essentially no development of coral reefs, except where some ahermatypic forms have become established.

While it is clear that there is impoverishment of reef building or hermatypic forms in shallow water, there has been found a considerable enrichment of ahermatypic forms in the Bocas area. The passages between the islands of the Bocas are substantially deeper than the adjacent shelf. For example, while the average depth of the Gulf of Paria is less than 40 metres, the passages of the Bocas extend down to something in excess of 300 metres. These passages are characterised by marked thermal stratification, with sharp thermoclines at depths varying from 15 to 25 metres. Light penetration is extremely poor and it is not unusual to require a diving light at 30 metres depth. Compared with ahermatypic coral communities in other Caribbean islands at similar depths, those in the Bocas area are much richer. In fact, many of the ahermatypic forms found here, are known only from deep dredging in other parts of the Caribbean. The enrichment of this component of the coral fauna must be related to the low temperature/high turbidity waters characteristic of the region.

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