

1. INTRODUCTION

The rapid growth in coral reef science and the great increase in the number of known geomorphological reef features have given rise to difficulties in terminology, especially when a standard terminology is required. By about 1978, it had become evident that the nomenclature of coral reefs, in the absence of any guidance, was becoming uncontrolled. Individual workers were naming reef features, while in many instances the same features were becoming known by several other names. Conversely there are instances in which the same name is given to different features.

Many of the names conveyed little or no suggestion of the nature of the features identified, and similar names were sometimes given to features of quite a different type. To alleviate this situation, various attempts to bring order into the general nomenclature of coral reef features were made by individuals or groups of specialists. Of the resulting nomenclatures however, none have met with general approval.

Consequently, a generally accepted and field tested geomorphological nomenclature has yet to be developed for coral reef features on the Great Barrier Reef (GBR). Interpreters of aerial photography and field surveyors from varied disciplines have produced a diversity of GBR maps, but no standardised nomenclature has been developed for their labelling and comparison. Communication has been hindered between GBR scientists themselves and with other scientists. This became clearly evident in a pilot study to determine how well a reef scientist could label classes mapped on a satellite reef image. The problem is well illustrated in the following survey on the definition of micro-atolls:

"Early descriptions of microatoll were given by Darwin (1842), Dana (1872), Semper (1880, 1899) and Guppy (1886), using general names such as coral head and coral block. Guppy (1886) spoke of 'miniature atolls', Agassiz (1895) of 'diminutive atolls' and Krempf (1927) of 'dwarf atolls' The term microatoll was first used by Krempf (1927) but without concise definition. It was widely adopted and variously defined. Kuenen (1933) used it for 'a colony of corals' with 'a raised rim, more or less completely surrounding a lower, dead surface'. MacNeil (1954) used it for 'massive colonial corals growing peripherally in shallow areas and whose dead

upper surface ... is exposed at low tide'.... Newell and Rigby (1957), Kornicker and Boyd (1962) and Garrett et al. (1971) have adopted the term, inconsistent with early usage, to refer to patch reefs consisting of many corals which develop a structure having a raised growing rim and a low, commonly dead or sand-filled centre. Scheer (1972) suggests ... mini-atoll ... for such patch reefs. The term 'faro' is in common use for large ring-shaped patch reefs at atoll margins."

Scoffin and Stoddart, 1978.

A standardised nomenclature for surface covers and geomorphic zones on reefs of the GBR is immediately required for a major reef study, the Barrier Reef Inventory and Analysis (BRIAN) project (Jupp et al., 1981a; Kuchler, 1984).

BRIAN is evaluating the cost-effectiveness of Landsat Satellite Multispectral Scanner (MSS) and aerial photographic data for detecting and monitoring geomorphological reef features and zones on the GBR. The delineation and definition of such features is a prime need of the project, since interpreted features within the remotely sensed data and mapped features on the ground have to be consistently labelled to allow cross-comparison. Stoddart (1969) also believes standardised procedures are needed 'to ensure comparability of all reef studies and the identification of variations in reefs both on local and regional scales.... and through time' (Longman, 1981). Similarly, Radke (1983) adds: 'Without standardisation of terms there is little scope for meaningful comparative analysis of reefs beyond that of the nomenclature itself'.

A nomenclature which standardises terms for surface covers and zonation on Great Barrier reefs is proposed and presented here.

Since field verification for this nomenclature is still unavailable and was not achievable within the time constraints of the BRIAN project, it has been based on an analysis of the frequency of reef term usage by publishing scientists.

This paper was designed as a secondary reference document to the accompanying Technical Memorandum "Reef cover and zonation classification system for use with remotely sensed Great Barrier Reef data", and therefore has subsidiary relevance to data classification (interpretation, mapping, and field data collection) from the GBR.

The accompanying memorandum demonstrates a classification system for reef covers and zonation and for use with remotely sensed and ground data (Kuchler, 1986) and utilises the nomenclature developed here. The classification system facilitates rapid and accurate identification, labelling and determination of the significance of reef features by field data collectors and image interpreters. Acceptance of the nomenclature and adoption of the classification system would allow a clearer and more efficient communication between scientists working on the GBR. In addition, the discussion of geomorphological nomenclature and the tabulation of its usage is now available from an historical viewpoint and for indicating present trends in usage.