

#### 4. RESULTS

The literature reviewed covers a period from 1814 to 1983, totals over 240 entries, and consists of published journal articles (Flinders, 1814; Done, 1982); proceedings from workshops and conferences (Wolanski, 1981); circulated notes (Beach Protection Authority, 1978); scientific reports (GBR Expedition, 1930); monographs (Hopley, 1982); abstracts (Done, Kenchington and Zell, 1981) and monograph series (Veron and Pichon, 1976). A list of the various terms used by scientists to label geomorphological zones and reef cover features is given in Table 1. The trends in the usage of terms and the contexts in which they are used in the literature are available in Kuchler (1984), Volume 2, Figures 4 and 5.

For the remainder of this paper, these two figures drawn from "Geomorphological separability, Landsat MSS and aerial photographic data: Heron Island Reef, Great Barrier Reef, Australia, Volume 2" will be referred to as Figure 4 "Frequency of use: coral reef geomorphological terms, reef cover and zonation, Great Barrier Reef, Australia", and Figure 5 "Context of use for geomorphological nomenclature: reef cover and zonation, Great Barrier Reef, Australia".

In Table 1, the terms used in the literature are summarised for easy reference; the terms chosen for the nomenclature are designated by bolding and upper case lettering; and, the most frequently used terms are designated by underlining and upper case lettering.

Figure 4 shows the frequency of reef term usage. On the left side, the various reef terms used are given; and at the bottom, the author(s) who used the terms are listed. Usage of a term is indicated by the entry of the last two digits in the year of publication (for example; 78) being given at the junction of the term (for example; coral head) and the author(s) who used it (for example; Flood and Scoffin). The number of publication dates entered against a term are totalled on the right side of the table to give the total frequency of use by scientists in over 2340 GBR literature circulations (for example, the frequency of use of the term 'coral head' is 15).

Figure 5 contains the contexts in which reef terms were used in the literature, with a comment on their variability by the author. Figure 5 was designed to allow easy access by the user, and therefore each reef term is presented on a separate page and as a centered heading in bold type. Definitions and descriptions extracted directly from the literature are presented under a 'Context of Use: Literature' title and the authors' comment is easily identified by its indented form.

For each term given in Figure 5, two types of information are supplied. Firstly, the contexts in which a term was used in the literature are directly quoted and presented together with the authors names and dates of publications for bibliographic reference. For example, for REEF SLOPE, the first entry in Figure 5, Maxwell's description is given:

CONTEXT OF USE: LITERATURE

Maxwell 1968 The reef front is the reef's growing edge, best developed along the windward side and resting on a terrace.

The number of authors definitions or descriptions given in Figure 5 may be lower than the frequency of use of a term as shown in Figure 4. This is because many scientists use a reef term without defining, describing or diagrammatically referring to it. Consequently, descriptive support is occasionally given to a term by reef scientists' publications on other reefs of the world, if the zone or feature is common to all reefs. Also, if the meaning of a term could not be inferred from its context of use then it may not be included in Figure 5. For example, the difference between 'the back-reef apron' and the 'foul ground' is not evident in Hill (1974): 'The back-reef apron and foul ground that falls away to the leeward off-reef floor'.

The second type of information given in Figure 5 is a comment by the author on the variability of usage, and a definition for the term. Using the same example, for REEF SLOPE the comment is:

COMMENT

The literature indicates there is no strong agreement among scientists on the use and meaning of the two terms 'reef front' and 'reef slope'. Different meanings and levels of generality ....

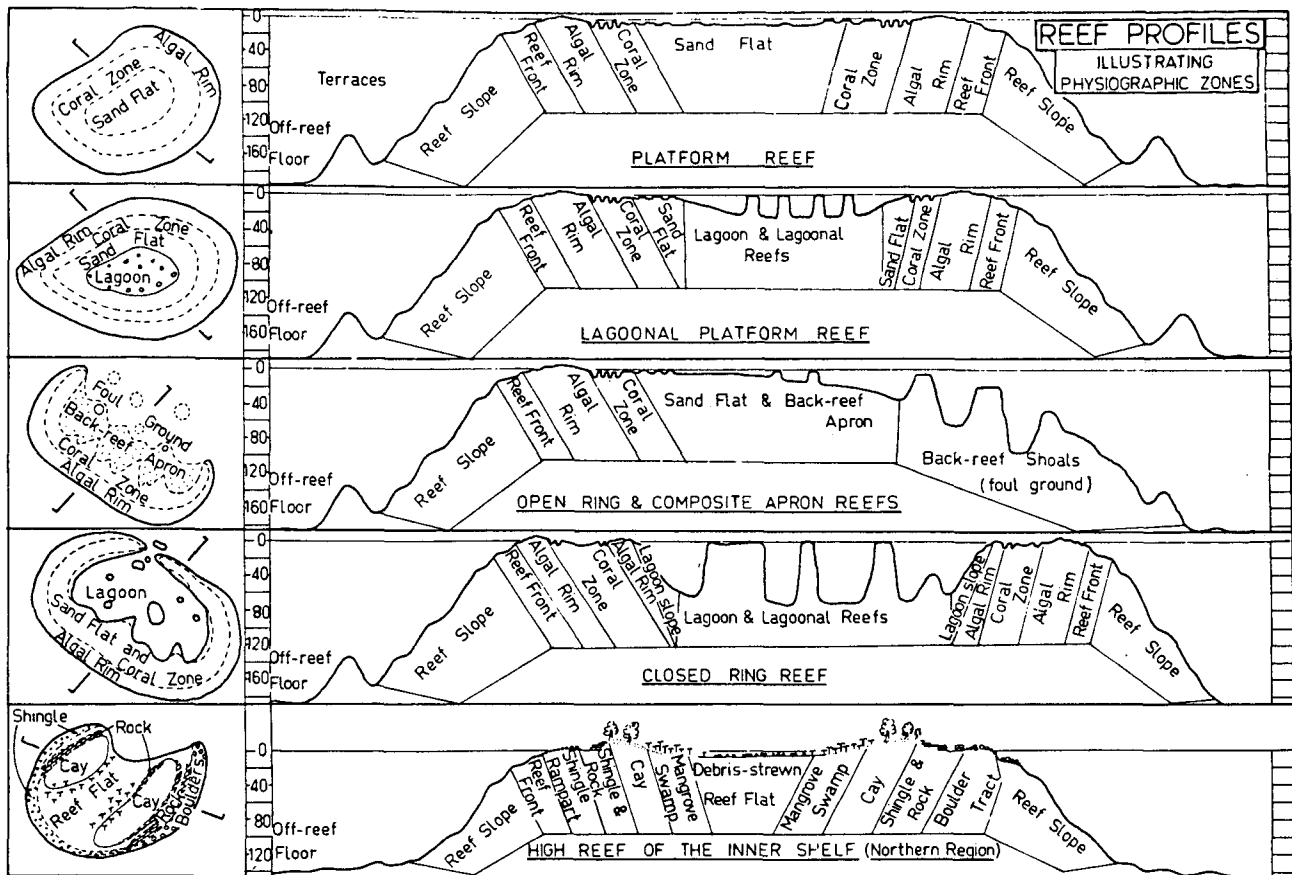
**Reef Slope: Definition** The 'reef slope' is the subtidal portion of the reef mass extending seaward from the perimeter of the horizontal reef surface (on some reefs this will be the edge of the reef rim) and descending towards and terminating at its intersection with the off-reef floor on the continental shelf. 'An average seaward reef slope approaches....

Because of insufficient published data, the comment is not a judgement by the author on the validity of the term, nor can it be an attempt to explain why a reef feature occurs. Rather, it is an attempt to define and describe the feature to which a term relates with the definition or description being based on published information. The comment may include:

1. information on which published scientists agree or disagree;
2. discussion of the cited definitions or descriptions;
3. the clarification of a description;
4. a qualifying statement; and/or,
5. an example from the GBR.

Diagrammatic or pictorial illustrations of the coral reef features or zones listed in Figure 5 are generally not given in this paper. This is because in the accompanying Technical Memorandum, (TM-7), which is intended as the principal reference document, the comment section of Figure 4 is re-presented together with extensive illustrations. However, a diagrammatic illustration (Figure 3) shows the reef profiles of the more common reef types from the GBR and gives labelled physiographic zones. The locations of reefs referred to in Figure 5 are available in Isdale et al. (1982).

Figure 3. Reef profiles of the more common reef types showing the physiographic zonation (reproduced with permission from Maxwell, 1968).



It is proposed that the terms listed in Table 1, defined in Figure 5 and selected for the classification system (Kuchler, 1986) should become, where relevant, standard nomenclature among GBR marine scientists. The nomenclature provides a consistent basis for comparing and analysing the coral reef interpretations made by different interpreters used in the BRIAN project, and it also enables a meaningful comparison between interpretations of the remotely sensed data and field observations.