5. IMPLICATIONS FOR REEF MANAGEMENT

Stability of the Reef Slope

Radiocarbon dating of the reef cores has shown the modern reef top unit has developed over a soft, muddy reef slope unit. Although the framework and hard bottom communities of the reef top unit have built a thicker section seawards, even the seaward part rests on muddy deposits. Furthermore extensive muddy slopes exist seaward of the reef front and pass out into Juno Bay (Johnson, unpubl. data).

These soft reef slope deposits must be preserved to ensure stability of the fringing reef mass. Alteration of local current patterns and/or sediment supply could lead to erosion of these muddy sediments, and eventually to undercutting and erosion of the fringing reef itself. The fringing reef is not protected by a resistant "wall" as are most of the shelf reefs. Brief inspections of other leeward fringing reefs in the Palm Isles suggests occurrence of this muddy slope is a typical pattern. Thus the construction of jetties, groins and other structures should only be done after careful analysis of their effects on local currents and sediment movement.

Rates of Reef Recovery

Estimates of reef growth during the past 3,000 years, that is under conditions essentially the same as the present, give a guide to expected rates of reef recovery. Hopley (1982, p. 225) has argued that in the Great Barrier Reef, "a general pattern of upward growth of 3-6mm/year to within 1m of sea level is seen, followed by a slower net rate of about 1mm/year in the accretion of the top metre." The rate in the top metre may be affected by the late Holocene sea-level drop, but the degree of the effect is impossible to estimate.

At Fantome Island reef growth was about 6.7 mm yr-1, which sits in the middle of the range 3-10 mm/yr quoted for fringing reefs by Hopley (1982). If the fringing reef is substantially eroded, it will not be re-established within the span of a human lifetime.