

INTRODUCTION

Green Island and its surrounding reef have a reasonably well documented history, as one would expect for a location which has been a major tourist attraction in the Cairns region for over fifty years. It is home to reputedly the world's first glass-bottomed boat service and to Australia's first coral cay resort and underwater observatory.

The most recent major repositories of general information on Green Island cay and reef are Baxter (1987) and the Great Barrier Reef Resource Inventory (Australian Littoral Society, 1990). The current report is intended to supersede Baxter (1987), while the latter is an updated version of the 1982 Resource Inventory (Australian Littoral Society, 1982). Both the Green Island Management Plan (Green Island Management Committee, 1980) and the 1982 Resource Inventory were valuable compilations of current knowledge, although inadequate referencing meant it was not possible to determine whether specific information originated from the published scientific literature, preliminary reports based on 'inferred data and broad assumptions' (see Chapter 1) or from local knowledge. While the 1990 Resource Inventory overcomes this deficiency and omits some of the more dubious 'facts', information attributed to the Green Island Management Committee (1980) should be treated with some caution.

Within the Great Barrier Reef region, Green Island has experienced a unique combination of natural and anthropogenic disturbances. Infestations of the crown-of-thorns starfish, Acanthaster planci, have been recorded twice in the past three decades. Nutrient input occurs from the sewage discharge of the resort and the water outlet from the marine zoological gardens, and the reef may also lie within the discharge plume of the Barron River (van Woesik in Baxter, 1988). Beach replenishment programs and revetments intended to reduce erosion around the western end of the cay have led to an unnatural redistribution of sediments in this area (Beach Protection Authority, 1989).

It has been suggested (Gourlay, 1983; Hopley, 1989) that some of these disturbances have, over the past four decades, led to a marked increase in area of the seagrass meadows to the north-west of the cay. However, a reviewer of McCormick and Choat (1989) believed there was no evidence to support such a suggestion as there was little information on expansion of seagrass areas elsewhere in the region. They noted that many uninhabited coral cays and reefs between Cairns and the Torres Strait also supported large seagrass meadows, so Green Island was not unique in having sizeable areas of seagrass.

The first of the A. planci infestations at Green Island was the first to be recorded on the Great Barrier Reef (Moran, 1986), and both infestations have preceded successions of outbreaks on reefs further south (Kenchington, 1977). This led to suggestions that Green Island may be near the epicentre of A. planci outbreaks on the Great Barrier Reef (Talbot and Talbot, 1971), although recent hydrodynamic models have predicted that A. planci larvae at Green Island reef are derived from more northern reefs (Dight *et al.* unpubl. ms.).

During the first A. planci infestation, Green Island hosted the first detailed Australian study of the biology, ecology and impact on the reef communities of A. planci (Pearson and Endean, 1969). This study, along with subsequent surveys to evaluate the recovery of the Green Island reef communities (Woodhead, 1971; Endean and Stablum, 1973a,b; Nash and Zell, 1981; Ayling, 1983), provides some historical data on coral abundance at certain localities on the reef. These are complemented by the current extensive coral surveys of Harriott and Fisk (1988, 1989) and the regular broadscale surveys of the Australian Institute of Marine Science (Bradbury *et al.*, 1987; Bass *et al.*, 1988, 1989a,b).

More recently, attention has been focussed on water quality and nutrient levels in the waters surrounding Green Island, with some attention being paid to the fate of sewage released from the cay's sewerage system (Steven *et al.*, 1989; van Woesik, 1990).

The broad scope of the Green Island Information Review should ensure its usefulness to anyone conducting research at Green Island in the near future. However, I stress the importance of updating the review on a regular basis to maintain its current status.

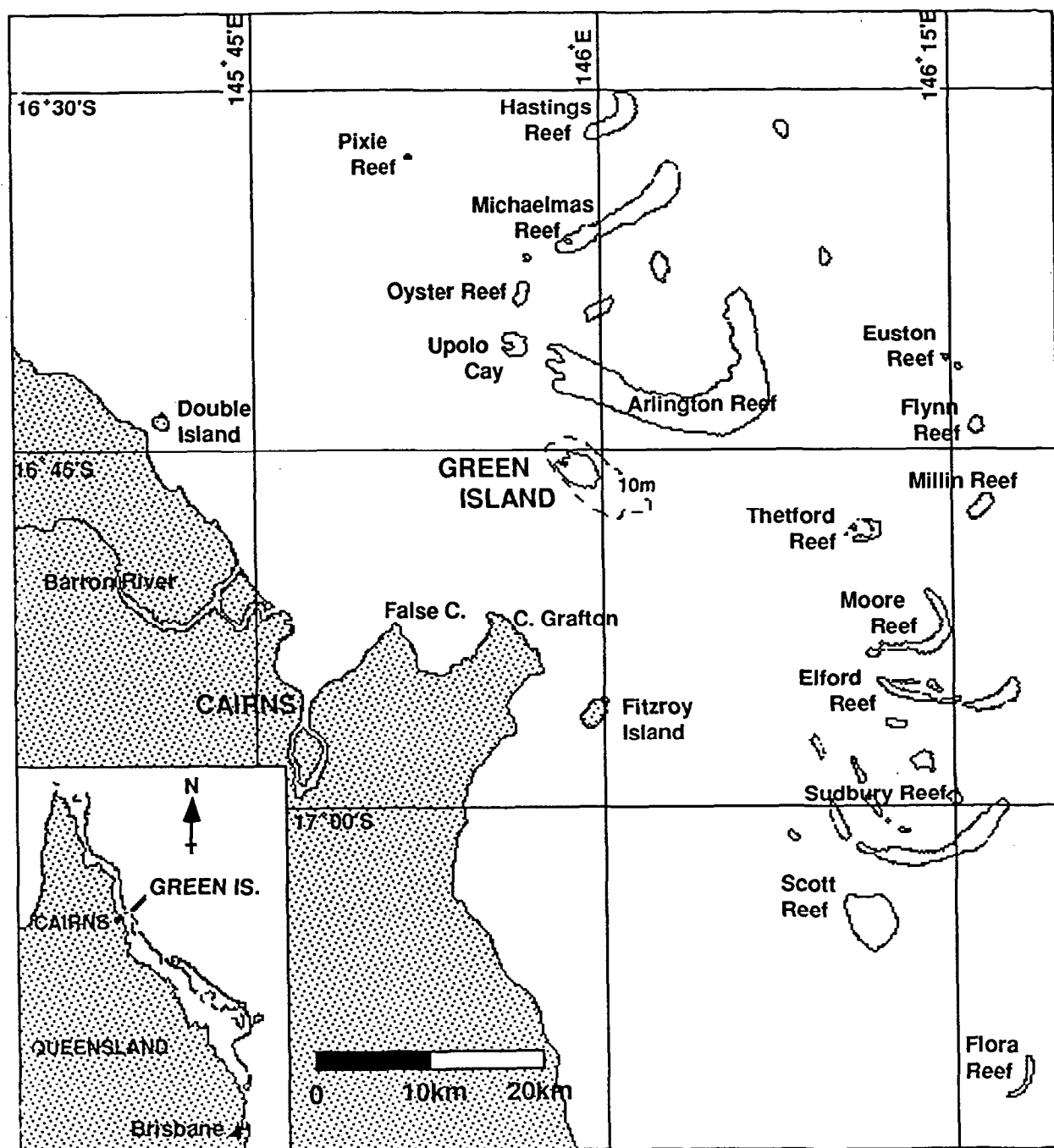


FIGURE 1.1 Locality plan, Green Island