

EXECUTIVE SUMMARY

- 1 The Great Barrier Reef Marine Park Authority commissioned the Department of Geography, James Cook University of North Queensland to conduct a field survey of carbonate, silica and quartzose sediment deposits that are located within or adjacent to areas of the Great Barrier Reef Region, but not within the Great Barrier Reef Marine Park.
- 2 Carbonate, silica and quartzose sands are sought for a variety of purposes:
 - i) Hobby aquarists in north Queensland have for many years collected small quantities of coral sand from the Great Barrier Reef. Retailers also supply sand for this market, and current demand is for about 5 m³ or 7.5 tonnes annually.
 - ii) There have been some requests for bigger volumes of coral sand (up to 300 tonnes) by large commercial aquarium operators.
 - iii) Tourist operators have sought large volumes of coral sand to renourish or create resort beaches. They have also sought pure white silica sand as an alternative to coral sand. The Queensland National Parks and Wildlife Services assesses this demand at about 40,000 m³.
 - iv) Quartzose sands are being sought to renourish numerous eroding beaches along the mainland coast. The Beach Protection Authority assesses current needs at about 500,000 m³ with an annual maintenance of more than 10,000 m³.
- 3 Section 38 of the Great Barrier Reef Marine Park Act prohibits operations for the recovery of minerals within the Marine Park, except for approved research. Because of their composition, and the fact that they are collected in large quantities, and/or for commercial purposes, these sediments are classed as minerals under the terms of the Act, and collection is prohibited. Collection can only be allowed for small quantities, obtained by hand, for non-commercial purposes. Thus, this study was undertaken to determine whether suitable sources of these sediments occurred outside the Great Barrier Reef Marine Park.
- 4 During the course of this study, coastal and island sites outside the Great Barrier Reef Marine Park were visited between Mossman and Sarina and offshore in the Coral Sea Islands Territories. Information was also obtained from the literature on sites from Cape Flattery in the north to Moreton Bay in the south.
- 5 Primary sources of carbonate sands suitable for use in the marine aquaria trade only occur well outside the Great Barrier Reef Region on coral cays on the Holmes and Flinders Reefs situated in the Coral Sea 330 and 240 km north-east of Townsville respectively. Combined sustainable yield is estimated to be about 75 m³ or 115 tonnes annually. However, due to their distance offshore these sites are presently of marginal commercial viability.
- 6 As approximately 50% of the mainland coast of the Great Barrier Reef Region lies within the Marine Park, potential sources of carbonate, silica, and quartzose sands in the Great Barrier Reef Region are of very limited extent. Coral sands of suitable characteristics do not occur in commercial quantities. Available silica sands are unsuitable for beach renourishment purposes. Quartzose sands do occur in both onshore

and offshore environments, but detailed analysis is required to fully assess the suitability of these deposits.

7 Alternative sources of carbonate sediment for the marine aquaria trade include:

- i) Coral sediment dredged from Moreton Bay fringing reefs. This would need to be washed, crushed, graded and transported to the north Queensland demand areas.
- ii) Shell-grit from the established Hervey Bay source area, or from potential sites in Broad Sound. This is considerably cheaper than coral sand, but is not the preferred material of north Queensland aquarists.