

8 SILICA SAND SOURCES

Pure white silica sands occur in dune systems, beach ridges, and tidal deltas along the coastline of Cape York Peninsula, Cape Clinton (north of Rockhampton), and in southern Queensland from the Gold Coast to Bundaberg (Sawers and Cooper, 1985). Several of these are mined, and the total reserves of silica sand are described as extremely large.

The only large volume silica sand mining operation is at Cape Flattery where about 500,000 tonnes per year are produced, all for export. This has been suggested as a potential source of sand for the Whitsunday resort beaches. However, it is over 700 km north, and the fine dune sands (0.3 mm) would be unlikely to match the sediments of the beaches in need of renourishment. Smaller silica sand mining operations in southern Queensland are described by Cooper (1982) and Sawers and Cooper (1985). About 150,000 tonnes per year are produced for use in glass manufacture, as foundry sand and in asbestos-cement products. These sands are also fine (0.2-0.4 mm) and unlikely to be suitable for beach replenishment purposes.

Tourist resort operators in the Whitsunday region have on several occasions requested permission to dredge silica sand from Hill Inlet on the eastern side of Whitsunday Island. As with the above sources, this sand is significantly finer than the beaches to be nourished and is thus not suitable. In addition, removal of the sand is likely to pose a severe threat to the stability of the nearby Whitehaven Beach (Holmes, 1987).

Renourishment of the Whitsunday resort beaches with currently available silica sands may also produce unacceptable environmental consequences in the systems to be replenished. Beaches on the resort islands are largely composed of carbonate sediments derived from fringing reefs (Valentine, 1985), and large volumes of silica sands are not a natural element of these environments. Fine silica sands placed on the foreshore will be eroded by wave action and tidal currents, and this sediment may damage the nearby reef complexes. The same problems could occur with quartzose sands, in these carbonate sediment environments.