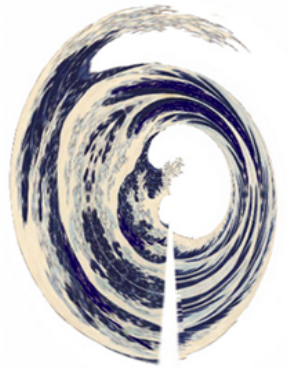

marine mer research ecosystem
consultants

James Gilmour BSc (Hons 1.) PhD (Candidate) Coral Reef Ecology

34 / 15 Gardener St., Como
Perth, Western Australia, 6152
Ph: +61 08 94741924
Mob: 0422 030 786
Email: jgilmour@cyllene.uwa.edu.au
ABN: 85 583 965 009

Thursday, 16 May 2002

Ian McCardle
Halpern Glick Maunsell Pty Ltd
629 Newcastle St.,
Leederville, W.A. 6007

RE: Coral Communities of Cape Preston and Preston Island.

Ian, below is my objective opinion on the regional significance of the coral community of Cape Preston, and in particular, the assemblage of corals on the northern side of Preston Island.

Regards,

James Gilmour

The regional significance of the coral assemblage on the northern side of Preston Island (Site 9).

In our baseline survey of Cape Preston and Preston Island, five of the 32 sites investigated had medium to high (26 – 38%) coral cover. Four of these sites were around Preston Island, and the other was located to the south-west of the Island. These, in total, are defined as the 'coral community' of Cape Preston and Preston Island. Within this coral community, Site 9 on the northern side of Preston Island had approximately 10% more coral cover (38%) than the mean cover (28%) at the other Sites (10, 11, 12, 17). The number of coral Genera at Site 9 was similar to the other Sites, although there were approximately 10 (19%) more species of corals. Most of these unique species were in low abundance, with the main exception being tabular Acroporids. Site 9 represents a small coral assemblage that is more characteristic of communities further offshore (5 – 10km), in the regions around Dampier and Onslow. The corals at Site 9, are defined here as the 'coral assemblage' on the northern side of Preston Island, that are a part of the local 'coral community' as a whole. The other Sites within this coral community are characteristically found in near-shore (< 5km) habitats between Dampier and Onslow. The regional significance of the coral assemblage on the northern side of Preston Island (Site 9) depends on the scale under consideration, the importance of rare species that are in low abundance in the local area, and the extent to which these corals supply larvae to the other assemblages within the local coral community.

Clearly the assemblage on the northern side of Preston Island is unique at a local scale (< 5km), along Cape Preston and Preston Island. The extent to which it is unique over a larger scale (10 – 20km) is uncertain. Within this scale are numerous other Islands (e.g. Fortescue Island, Regnard Islands) that probably have similar coral assemblages, particularly because they are further offshore. However, there have been very few quantitative surveys of these areas. A qualitative survey of the region by the Marine Conservation Branch identified coral communities associated with the Islands near (<15 km) Cape Preston, and along the mainland north of Cape Preston (Osborne et al. 2000). However, they did not quantify species distributions or coral cover, so it is not known whether any or all of the assemblages are similar to that on the northern side of Preston Island. The coral community around Preston Island was not recorded during this survey, suggesting that it is smaller in size than those that were recorded. At a large scale (50 – 150 km) the habitats between Dampier and Onslow certainly have many assemblages of corals similar to that at the northern side of Preston Island (Marsh 1978, Halpern Glick Maunsell 1997).

Most of the 10 species of corals that were unique to the northern side of Preston Island were in low abundance, having less than 10 colonies each, within the area surveyed. They are unusual because of their close proximity to the mainland. The importance of these corals also depends on their survival under natural conditions, which is most difficult to predict, particularly because of their unusual distribution. Their contribution to the maintenance of the local community overall is unlikely to be significant. Their low abundance, coupled with the modes of reproduction and recruitment in spawning corals, would suggest that they contribute little to local levels of coral recruitment. Also, there are few other sites, apart from on the northern side of Preston Island, where these species are likely to survive following their recruitment.

The assemblage of corals on the northern side of Preston Island is unique within the local community of Cape Preston and Preston Island because it has 10% more coral cover than the other assemblages and a number of species in low abundance that are not found elsewhere. These unique species are unlikely to contribute to the maintenance of the local community overall. There are possibly similar assemblages around the Islands, and perhaps the Mainland, within 20 km of Cape Preston. Between Dampier and Onslow, within 150 km of Cape Preston, are many similar assemblages of corals. The importance of the corals on the northern side of Preston Island will be judged according to the criteria of the relevant management authority, and in this cases, whether it includes an assemblage of corals that have some species in low abundance that are uncharacteristically close to the mainland. Whether it is critical to conserve all colonies of all species within this part of the Island is questionable, although the importance of the whole coral community around the island and off Cape Preston is certain. This represents the entire community on a local scale, and over a broader scale, is probably a connection between the reefs extending from Onslow to Dampier. Consequently, the community as a whole should be maintained, whereas the specific maintenance of all individual colonies at Site 9 is of less regional significance.

Literature Cited.

Osborne S, Bacroft K, D'Adamo N, Monks L (200) Dampier Archipelago / Cape Preston: A regional Perspective, 2000. Marine Conservation Branch, Department of Conservation and Land Management, Fremantle, Australia

Marsh L (1978) Report on the corals and some associated invertebrates of the Dampier Archipelago. Western Australian Museum, Australia

Halpern Glick Maunsell (1997): Onslow Solar Saltfield. Coral Reef Monitoring Survey 1, July 1997. Prepared for Onslow Salt Pty Ltd.