Chapter 5

Reef Condition

Sheila A. McKenna

SUMMARY

- Reef condition is a term pertaining to the general "health" of a particular site as determined by assessment of key variables including natural and human-induced damage or stress and biodiversity based on focal species or indicator groups (corals and fishes). Of the 62 coral reef sites surveyed, 53 had a full data set for these parameters and were comparatively ranked and rated as excellent, good to very good, fair and poor. Nearly half (49%) were rated as being in a very good to good state.
- The most frequently observed threat or disturbance to the reefs surveyed was from fishing related activity that occurred on 38.7% of the reef sites surveyed. Debris from mostly fishing or other human related activity was observed on 32.3% of the reef sites surveyed.
- In general damage to the reef sites surveyed from predation by *Acanthaster plancii*, or Crown of Thorns Starfish (COTS) and can be characterized as light and localized except for moderate damage at site 85. No mass (*A. plancii*) feeding aggregations or evidence of a past population outbreaks were noted on any of the reef sites surveyed. Observations included the presence of one to four individuals or feeding scars on coral colonies at 35.5% of the sites surveyed. Breakage to coral colonies from algal feeding activity by the hump head parrotfish, *Bolbometapon muricatum* was light and localized as well. The presence of this species is indicative of a healthy reef.
- Siltation or sediment stress was noted on 24.2% of the reef sites surveyed and was observed to have the most severe impact on the reefs of all the 'stress' factors examined. Sedimentation stress appeared to be most severe at the inshore fringing reef sites in close proximity of the Tiebaghi mine, especially within the Baie de Néhoué and two fringing reef sites inshore directly adjacent to the mining operations.
- No bleaching was observed at any of the reef sites surveyed, however symptoms of coral disease or pathogens were noted at 8.2% of the sites assessed. These symptoms were indicative of calcioblastic neoplasms or tumors, white syndrome and pigmentation response. Although tumors have been reported previously in New Caledonia, this may be the first report of white syndrome and pigmentation response.
- Numerous red listed species were spotted on 66% of the reef sites we assessed. These include several species of sharks, bony fishes, and sea turtles. This frequency of observation of red listed species at sites was less than that of the previous marine rap survey on the east coast in Mount Panié. However this percentage is still high in comparison to past marine rap surveys undertaken by Conservation International.

INTRODUCTION

The reefs of New Caledonia have been impacted by land-based activities mainly from mining, deforestation and coastal development. Other sources of damage that have been documented include bleaching, crown of thorns starfish (COTS), disease and cyclone events. The