WAMSI NODE 4 MILESTONE PROGRESS REPORT (MPR)

Project Details

Project No. and Title	4.2 Assessment of marine communities and the impact of anthropogenic influences.
Node Leader	Rick Fletcher
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SubProject No. and Title	4.2.4 Cost effective methods.
Project Start Date	1/1/08
Project End Date	30/6/11
Due Date for this Milestone	30/6/09
Milestone Description	Power analyses on remote sensed data / map-derived indicators completed Comparison of diver vs camera-based techniques for SB indicators completed Power analyses on mobile invertebrates completed Trial sites for fish and mobile invertebrates chosen Trial for SB indicators completed Interim report on habitat / SB methods completed

1. Executive Summary

- The principal goal of this research was to investigate the most efficient, cost-effective and meaningful way of describing the structure and biodiversity of seabed habitats along the coastline of WA.
- We have compared the ability of three independent methods, including traditional Scuba diver collections and modern remotely-triggered photography, to collect data on habitat cover and species distributions that could be used for long-term monitoring. Our results suggest that spatial coverage is more important than methodology *per se*, and techniques that facilitate broad scale monitoring, such as towed video and remote camera, are preferable. However, high resolution species level data (i.e. biomass sampling) should be obtained intermittently to monitor fine scale changes in community structure. Furthermore, the only long-term dataset on temporal variability is derived from biomass sampling. This dataset suggests that some biomass-derived indicators are relatively stable through time and would make good indicators.
- Research into the distribution and abundance of non-fished mobile benthic invertebrates has shown that adult populations are extremely patchy, and abundance of dominant species can be very low at many locations. This yields poor power to detect change and would suggest that indicators based on species of mobile invertebrates would be ineffective. However, they should be incorporated into community-level monitoring, and the recruitment of mobile invertebrates onto artificial substrata is an interesting approach to monitoring that merits further research.
- A remotely-triggered ‘drop camera’ system has been used to extensively survey benthic habitats at The Abrolhos Islands, Jurien Bay, Rottnest Island and Cape Naturaliste (NHTII – WA Marine Futures). Analysis is ongoing, but preliminary analysis suggests that this methodology would have sufficient power to detect change with a feasible sampling effort, and that certain taxa change in abundance predictably along the latitudinal gradient, and may act as useful indicators of ocean warming.