Ningaloo

WAMSI Node 3

Monitoring the health of coral and fish communities at Ningaloo Reef

Researchers are working to create the best, most cost-effective and safest way to conduct a long-term monitoring program of reef health in Ningaloo Marine Park based on the growth and recruitment of coral and fish.

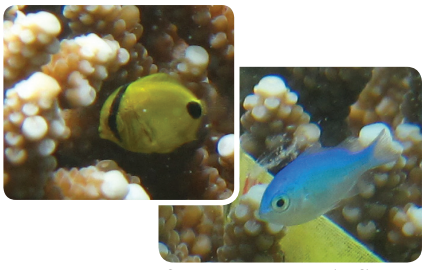
Background

Long-term monitoring is an essential management tool because it highlights changes in trends over both time and space.

As the first assessment of reproduction processes covering the entire marine park, this study:

- provides a thorough baseline data set from which to begin monitoring; and
- identifies important habitats within the Ningaloo Marine Park that have a role in larval transport or recruitment.

Reef health and resilience depends on the recruitment of new individuals of both coral and fish species each year and it is these individuals that ultimately hold the future fate of our coral reefs.



Courtesy of Tom Holmes (DEC)

Preliminary findings

Major findings have yet to be fully assessed but preliminary results suggest:

- the amount of coral and fish larvae coming onto the reef is highly variable for different locations across the Ningaloo Marine Park
- the vast majority of larval survival is found in the calmer waters of the marine park (i.e. back-reef areas where there is complex habitat structure)
- the existence of vast algal fields (*Sargassum*) in the northern and central parts of the marine park's lagoons act as important nursery grounds for many species of reef fish including recreationally fished species such as the emperors.

These findings indicate that there are areas of higher priority and areas of lower priority in relation to annual patterns of larval transport onto the reef.

Calmer lagoonal and back-reef areas are vitally important to the ongoing health of Ningaloo's adult coral and fish populations as this is where nursery grounds seem to be concentrated.

Future monitoring

The development of a long-term monitoring program that monitors larval input is critical because it provides a benchmark of the future health of the Ningaloo reef system.

Information from this project includes detailed maps showing densities of new fish and coral recruits; their relationship to habitats; and the pros and cons of various monitoring techniques.

The project was designed to provide management agencies with a template of how best to monitor annual recruitment processes within the Ningaloo Marine Park as an indicator of reef health.

A number of monitoring choices will be presented to marine park managers, each with differing levels of monitoring intensity.

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Ningaloo research is an initiative of the Western Australian Marine Science Institution, CSIRO's Ningaloo Collaboration Cluster and the Australian Institute of Marine Science, working in partnership with government, local communities and enterprises.