# RANGE TO REEF

Until the late 1980s, most visitors to Ningaloo Reef went there to fish. When the Ningaloo Marine Park was established in 1987, managers needed to encourage more passive and educational enjoyment of the park's spectacular reefs and marine life. Other challenges were to establish sanctuary zones, protect the park's unique habitat and sensitive marine animals like turtles and whale sharks, and manage the adjacent coast. More than a decade after its establishment, Doug Myers looks at the report card for Ningaloo.

by Doug Myers

Ningaloo Marine Park protects the largest fringing coral reef in Australia and one of the few large reef areas in the world found so close to a continental land mass; about 100 metres offshore at its nearest point and less than seven kilometres at its furthest. Living among or near the colourful corals is a remarkable diversity of tropical marine plants and animals, from dainty clownfish to massive whale sharks.

The State waters of Ningaloo were declared a marine park by the Western Australian Government in April 1987. After much public consultation, a management plan for the park was released in November 1989. The park's Commonwealth waters were declared by the Federal Government in May 1987, bringing the park's total area to approximately 4,300 square kilometres. A joint management arrangement between the State and Federal Governments enables the Department of Conservation and Land Management (CALM) and Fisheries WA to manage the Commonwealth waters of the park on a day-to-day basis.


The Commonwealth, via its agency Environment Australia, also provides the State Government with financial and technical assistance for the park's overall management. Environment Australia is currently preparing a new plan of management for the park's Commonwealth waters, to complement what is proposed for State-controlled waters.

## DECADE OF MANAGEMENT

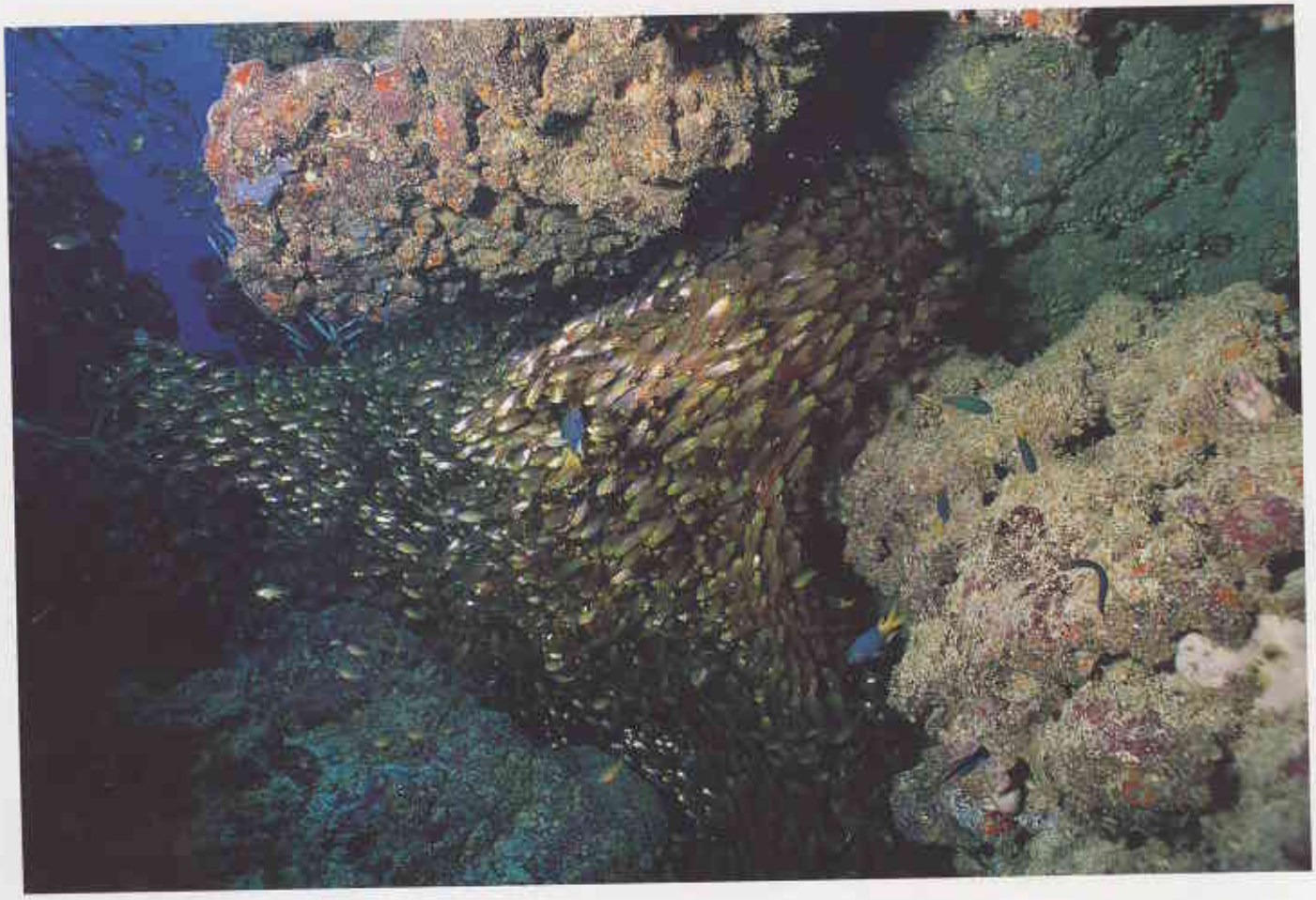
Since the park was established, visitors have gradually become less focused on fishing and more likely to visit the area to snorkel, go boating and view the plethora of marine animals. This change in attitudes has helped managers to encourage a conservation ethic among park users.

*Previous page*
*Main:* A large staghorn coral at Ningaloo Marine Park shows the proximity of the reef to the shore.
Photo – Brett Dennis/Lochman Transparencies
*Inset:* Loggerhead turtle.
Photo – Peter & Margy Nicholas/Lochman Transparencies.

*Below:* Ningaloo Reef offers superb diving.
Photo – Ann Storrie

The 10-year management plan for Ningaloo Marine Park is now being reviewed and CALM recently undertook an evaluation of the management of the park over the past decade. The evaluation provides an insight into some problems and issues that emerged over the past 10 years. This information is now being used to develop a 'new' management plan for the coming decade.

Most objectives in the current management plan for Ningaloo Marine Park have been achieved over the past 10 years. The park's zoning system has been implemented via legislation and



*Right:* Passive and educational enjoyment of the reef is now a major recreational activity at Ningaloo Marine Park.
Photo – Colin Kerr

*Below right:* Ningaloo is one of the world's few major reef systems that you can snorkel to from shore.
Photo – Bill Belson/Lochman Transparencies

*Bottom right:* The Milyering Visitor Centre in Cape Range National Park also provides visitors with information on Ningaloo Marine Park.
Photo – Dennis Sarson/Lochman Transparencies

signs have been erected to advise users of zone boundaries. Other significant achievements include implementing special regulations for recreational fishing.

Extensive education programs, especially those carried out soon after the management plan was launched, have achieved substantial public appreciation of the marine park's varied attributes and a high level of compliance with park regulations and policies.

Significant objectives not achieved over the past decade were associated with management of pastoral lands alongside Ningaloo Marine Park. Coastal environments adjoining the marine park have suffered from indiscriminate four-wheel-driving and largely uncontrolled camping. Future management of recreational activities in these areas is currently being addressed by CALM and the Ningaloo Reef Outback Coast Association (an association of owners or managers of pastoral leases abutting the park).

## RANGE TO REEF

Cape Range National Park adjoins Ningaloo Marine Park, and the two parks can therefore be managed as a single unit. Most visitors to the North West Cape spend much of their time enjoying the long stretches of beach, at the interface between the two parks. The beaches are potentially far more susceptible to environmental degradation than less popular areas and require more intensive management. The parks are able to share infrastructure and visitor facilities. This strategy minimises administration and clerical support, and avoids duplication of resources.

Developments in Cape Range National Park are located to complement marine park attractions. The Milyering Visitor Centre, within Cape Range National Park, provides interpretation facilities for the two parks (including the Commonwealth waters of the marine park) from 'range to reef'. Some of the financial assistance provided by Environment Australia is used to employ additional staff during peak holiday periods. Environment

Australia also provides funds for ongoing maintenance of infrastructure and public displays at Milyering. In other words, the marine park benefits from the fact that a superb facility could be built on national park land right next to it, while Cape Range National Park gets spin-off benefits from Commonwealth funding available to the marine park.

Volunteer campground hosts located at peak times in all large camp sites in Cape Range National Park provide park visitors with 'on the spot' information on the coral coast parks. The hosts are mostly retired people. They provide invaluable support for CALM staff, who are coping with ever increasing numbers of visitors.

## ADJACENT LANDS

The State and Commonwealth governments have agreed that the coastal part of Department of Defence lands, just south of Cape Range National Park, will be jointly managed by CALM and the Defence Estates Organisation (DEO). This land, locally known as 'the bombing range', was recently given the title of the Bundera Coastal Protection Area. Bundera Sinkhole, a large karst feature with significant geological values and habitat for rare subterranean fauna, lies within the protection area. A joint draft management plan for this land is currently being prepared by DEO and CALM, as well as a recovery plan for Bundera Sinkhole, which is a threatened ecological community.

A management plan for Jurabi and Bundegi coastal parks and the Muiron Islands, north of Cape Range National Park, was recently launched by the State Minister for the Environment. The coastal parks are Class C reserves for the purpose of recreation and coastal protection and abut Ningaloo Marine Park. They are jointly vested in the Shire of Exmouth and the Executive Director of CALM. The Muiron Islands are a Class C reserve for the purpose of recreation and protection of flora and fauna. This reserve is jointly vested in the Shire of Exmouth and the Conservation Commission of WA. It is proposed that day-to-day management of all three reserves be overseen by a management committee with equal representation from the Shire of Exmouth and the local CALM office.

## MARINE RESEARCH

The creation of Ningaloo Marine Park helped attract significant scientific

*Above:* The exceptional beauty of the Ningaloo coast attracts visitors from all over the world.
Photo – Bill Bachman

*Left:* A small marine snail, *Drupella cornus,* consumes living coral.
Photo – Ann Storrie

*Below:* Fire coral overwhelms the skeletons of corals destroyed by drupella at Ningaloo Reef.
Photo – Geoff Taylor/Lochman Transparencies

*Right:* Measuring and tagging green turtles at Ningaloo Marine Park.
Photo – Eva Boogaard/Lochman Transparencies

*Below:* A golden ghost crab (*Ocypode convexa*) devours a loggerhead turtle hatchling.

*Below right:* A green turtle returns to the ocean after laying its eggs.
Photos – Jiri Lochman

interest in the area. More than 250 research projects have been undertaken in the marine park over a 12-year period.

CALM has established permanent habitat monitoring sites throughout Ningaloo Marine Park to detect natural (such as cyclones or infestations of the marine snail *Drupella*) or unnatural changes in the marine environment at an early stage. This information can then be used to initiate management strategies to address the causes of such change. A resurvey of 17 sites near Coral Bay has also been undertaken to assess the recovery of the reef killed by a coral spawn slick in 1989.

Other current research projects include a comparison of fish populations and marine habitats within sanctuary zones and those within multiple-use zones of the marine park. A review of the oceanography of Ningaloo Marine Park is currently being undertaken by CALM in association with the Australian Institute of Marine Science and CSIRO.

## PROTECTING TURTLES

The northern beaches of North West Cape are significant nesting areas for sea turtles, mostly green turtles (*Chelonia mydas*). They come ashore each year in varying numbers. Large numbers of loggerhead turtles (*Caretta caretta*) also nest at the Muiron Islands. During the turtle-nesting season, CALM staff and volunteers tag turtles and monitor nesting activity and human interaction with turtles at North West Cape.

Further south in Ningaloo Marine Park, loggerhead turtles breed along the beaches near the small holiday settlement of Coral Bay, especially along the north-facing beaches of Bateman Bay. A range of threats—both natural and unnatural—to adult turtles and hatchlings exists at these sites. Human activity disturbs the females coming ashore to nest, introduced foxes dig up and eat the eggs, hatchlings become trapped in deep tyre ruts left by four-wheel-drive vehicles using the beach and ghost crabs kill the hatchlings as they head for the sea.

A community-run volunteer project is reducing some of the dangers faced by turtle hatchlings in the Coral Bay area. The project is led by Peter Mack, assisted by funding from the Coastwest/Coastcare program and supported by local CALM staff. Volunteers identify new nest sites early each morning, before the wind has blown away the turtle tracks. Careful probing into the sand determines the precise location of the nests. Each nest is numbered and its date and position recorded. The nests are protected with wire cages to reduce fox predation of eggs and to protect the baby turtles once they have hatched. The hatchlings are then released under more

controlled conditions, to avoid some of the threats to their survival.

Turtle watching has become a significant attraction for people visiting Ningaloo Marine Park, especially during summer, when there is much nesting and hatching activity. CALM distributes a considerable amount of educational material on appropriate methods of observing nesting turtles. Special light-reflecting interpretive signs have been erected at popular nesting sites.

## WHALE SHARKS

Human interaction with whale sharks (*Rhincodon typhus*), the world's largest fish, has become a major attraction for people visiting Ningaloo Marine Park. These awe-inspiring creatures appear each year at Ningaloo, usually between March and June. They are evidently attracted to the area by food pulses associated with several seasonal oceanographic events, including water movements related to the Leeuwin Current. The filter-feeding sharks' diet includes tropical krill, planktonic copepods and small fish.

Commercial whale shark tour operators in Ningaloo Marine Park are licensed by CALM and required, under their licence conditions, to record the number of paying passengers and the number of whale shark interactions. These data are analysed and total numbers of visitors and shark sightings are continually added to an ongoing database. The licence conditions incorporate a 'code of conduct' developed by whale shark tour operators and CALM staff.

Research on whale sharks within Ningaloo Marine Park includes a satellite tagging program conducted by Dr John Stevens of CSIRO Marine Research (Hobart), in conjunction with Murdoch University graduate Brad Norman. Brad is also studying aspects of the biology and ecotourism industry of whale sharks in north-western Australia.

## THE FUTURE

Ten years on, one of Australia's most remarkable marine areas remains a healthy ecosystem, and establishment of the marine park has gained wide public acceptance within Western Australia. The attractions of Ningaloo Marine Park and its pristine nature are becoming well known throughout the rest of Australia and, indeed, the world. Increasingly, the coral coast parks are attracting international tourists throughout the summer months, historically a time of very low visitation.

*Above:* A code of conduct for interaction between people and whale sharks is helping to ensure the world's largest fish keeps coming back to Ningaloo.
Photo – Ann Storrie

*Left:* An anemonefish gains protection from predators in the tentacles of a sea anemone.
Photo – Peter & Margy Nicholas/Lochman Transparencies

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Winner of the 1998 Alex Harris Medal for excellence in science and environment reporting.

# LANDSCOPE

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*Armed with sketch pad, pencils, pens and paints, an intrepid group of artists set off on a brand new* LANDSCOPE *expedition. See 'Awash with Colour' on page 28.*

*Most of us only know of the exotic pest ants that invade our kitchens. But what of the great Australian ants? See page 23.*

*Ningaloo Marine Park and Cape Range National Park lie side by side in our north-west corner. Read about how they are managed on page 17.*

*Four more conservation reserves now offer greater protection to areas in and around the Mitchell Plateau. See 'Parks of the Plateau' on page 48.*

*Scientists continue to develop ways to locate, track and trap animals for research. See 'Tools of the Trade' on page 41.*

## FEATURES



## REGULARS



## COVER

*For many years, the decline of frogs in various parts of the world has puzzled conservationists. A breakthrough came in 1996 when scientists isolated a new kind of fungus that infects and may kill frogs. Western Australian research now under way is beginning to answer some initial questions about the fungus and its impact on our unique frogs. See 'In Pursuit of the Frog Fungus' on page 10.*

*Cover illustration by Philippa Nikulinsky*


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