





# Ningaloo

## reef of gold

Mention the word 'reef' in Western Australia, and most people immediately think of Ningaloo. Yet when the Ningaloo Marine Park was first declared in April 1987, few people had heard of it. Now, protection for this cherished marine icon is even better, with the marine park boundaries being extended to protect Ningaloo's entire 300-kilometre length. A new marine management area has also been established at the Muiron and Sunday islands, one of the region's most beautiful and biodiverse underwater wilderness areas.



by Carolyn Thomson-Dans



**T**he conservation significance of Ningaloo Reef—the largest fringing coral reef in Australia—was recognised in the 1960s by the Western Australian branch of the Australian Marine Sciences Association. Despite concern from the local communities at Exmouth and Coral Bay, who felt that it would affect the local economy and their lifestyles by restricting fishing and other activities, the State waters of Ningaloo (and a 40-metre strip along the shore) were finally declared a marine park by the Western Australian Government in April 1987. The park included about 90 per cent of the reef, and extended about 260 kilometres from North West Cape to Amherst Point.

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**Main** Ningaloo Reef and Sandy and Osprey bays, Ningaloo Marine Park.

*Photo – David Bettini*

**Inset** Lionfish.

*Photo – Peter and Margy Nicholas/  
Lochman Transparencies*

**Below** Anemone and fish on reef.

*Photo – Glen Cowans*



**Above left** A blennie peers from its home.

**Above** A feather star extends its arms to feed.

*Photos – Glen Cowans*

### Living colour

Today, more than 200,000 people visit Ningaloo Marine Park every year to dive, fish, surf or just soak up the remote landscapes and winter sun. However, the park is important to most Western Australians, as Ningaloo Reef has become a symbol of all that is special and pristine about Western Australia's marine environment.

People who have dived or snorkelled at Ningaloo understand this only too well. Many have had the privilege of swimming alongside massive whale sharks, up to 12 metres long, as they cruise the waters of Ningaloo, sucking in tiny prey. Dugongs are frequently seen in the shallow

lagoons. There are also big numbers of large marine animals such as manta rays, marine turtles and humpback whales. Every year on certain nights, mainly following the full moons in March and April, divers gather to witness the mass spawning of coral, when billions of pink eggs and sperm burst from their parents in a synchronised display.

In many of the sheltered lagoons between the reef and the beach, staghorn and other corals grow in dense colourful gardens populated by tropical fish of all





Above The feather-like tentacles of a tubeworm.

Photo – Glen Cowans

shapes and sizes. Such is the area's biodiversity that there are more than 200 species of corals, 600 species of shellfish and other molluscs, and 500 species of fish in the park. The Muiron and Sunday islands contribute further to this amazing biodiversity. The foreshores and nearshore reefs of the Ningaloo coast and the Muiron and Sunday islands are also important aggregation and nesting areas for loggerhead, green and hawksbill turtles, all of which are threatened.

Of course, Ningaloo is much more than just the sum of its parts. You really have to go there to fully appreciate the wild nature of the land and seascapes that is such a huge part of the area's appeal.

### Having a whale of a time

As well as the intrinsic benefits of conserving the park's biodiversity, and the pleasure that people gain from experiencing the area, Ningaloo Marine Park is producing major economic benefits. The whale shark industry alone brings \$12 million in revenue into the local economy every year. A study on the economic effects of tourism on Exmouth, recently carried out by Professor David Wood from Curtin University, illustrated the value of the Ningaloo Marine Park to the local economy. Ningaloo Marine Park was considered by visitors to be the most important tourist attraction in the Exmouth area. More than 83 per cent of all respondents considered the Ningaloo Marine Park to be a reason for visiting Exmouth.

A major pastime for visitors was snorkelling, with 75.6 per cent of WA



visitors, 67.9 per cent of interstate visitors and 71.4 per cent of overseas visitors undertaking this activity. Recreational fishing is another major activity in the marine park. Other activities that were extremely popular were swimming with whale sharks, coral viewing and sightseeing. It is estimated that about \$127 million a year of the total spent by visitors to the Exmouth area is directly attributable to the Ningaloo Marine Park and the adjoining Cape Range National Park.

### Plan for greater protection

With all this recreational activity in Ningaloo Marine Park, which is set to increase further with new developments

planned near Exmouth, it is vital to provide even greater protection to the reef. The original boundaries of Ningaloo Marine Park did not protect the entire Ningaloo Reef ecosystem. In the reef's south its structure changes from a fringing barrier reef to a true fringing reef environment, supporting a diversity of reef communities with a distinctly temperate influence. Many southern temperate species that are found only along the west coast of Western Australia do not extend to the northern end of the park. For example, the western rock lobster (*Panulirus cygnus*) occurs in relatively small numbers at the southern end of Ningaloo Reef but is less common





north of Coral Bay. The endemic west coast shellfish *Turbo pulcher* is abundant as far north as about Gnarraloo Bay but is replaced by *Turbo argyrostuomus* further north on the Ningaloo Reef. Scientific understanding of the ecological values of the Ningaloo Reef has also increased significantly since the marine park was established.

Hence, a new draft management plan (to replace the original 10-year management plan) was released for public consultation in July 2004, along with an indicative management plan for a proposed southern extension to the park to Red Bluff (covering a further 38,000 hectares) to include the entire 300-kilometre length of Ningaloo Reef in the park.

The draft plan also included an indicative management plan for a proposed 28,000-hectare marine management area at the Muiron and Sunday islands, 15 kilometres north of North West Cape. One of the most magnificent dives in the Exmouth area is the 'cod spot', which is offshore at



**Above** A diver looks at a giant clam at Ningaloo Reef.

**Top left** Swimming with a whale shark is the experience of a lifetime.

Photos – Alex Steffe/Lochman  
Transparencies

**Centre left** Massive potato cods are also among the larger inhabitants of Ningaloo Marine Park.

Photo – Geoff Taylor/Lochman  
Transparencies

**Left** Staghorn coral garden at Ningaloo Marine Park.

Photo – Clay Bryce/Lochman  
Transparencies



**Above** A manta ray sweeps over the reef.  
*Photo – Eva Boogaard/Lochman  
 Transparencies*

**Right** Aerial view of the Muiron Islands.  
*Photo – Wade Hughes/Lochman  
 Transparencies*



the Muiron Islands. At this reef feeding station the limestone reef, in deep water, is covered in thousands of golden cardinalfish. Large cod are also frequently seen in the area. Many other smaller cod and emperor species gather around divers. At another spot known as 'The Spit', which has numerous swimthroughs along its edge, divers are enveloped by hundreds of tiny baitfish and may discover a grey nurse shark or turtle sleeping peacefully under a ledge. Large manta rays are also common.

Following the public consultation period, the State government formally extended Ningaloo Marine Park and established the new marine management area in November 2004. These initiatives seek to conserve marine biodiversity in this area and to ensure opportunities for nature appreciation, recreation (including fishing), tourism, research and education are maintained and managed within an ecologically sustainable framework.

In announcing these measures, the government committed an extra \$8.5 million over the next four years for the management of the expanded marine

park, through the Department of Conservation and Land Management and the Department of Fisheries. This funding was in addition to \$5 million already committed over the same four year period for scientific research and monitoring of the reef and its ecosystems.

The draft plan had proposed to increase the existing sanctuary zones at Ningaloo from 10 per cent to 28 per cent of the total area of the State waters of the park and its proposed extension. However—in response to both public submissions and to independent scientific advice—the government decided to increase the area in sanctuary zones to around 34 per cent, although it made some changes to sanctuary zone boundaries to reduce the impact of these changes on recreational fishers.

Most of the extensions to the

existing sanctuary zones are to the seaward side of the reef and in many instances the landward boundaries have been placed 100 metres offshore, so that line fishing from the shore can continue along 70 per cent of the park's coastline. Sixty-six per cent of Ningaloo Marine Park will still be available for fishing (multiple use areas).

### **Finding sanctuary**

Sanctuary zones are one of the most effective ways of protecting the nature conservation values within marine parks and this is their primary purpose. Sanctuary zones of the right size in the right areas can also increase fish populations outside the zones, as adult fish move out of the 'no take' zones into adjoining areas, thereby providing additional secondary benefits to fishers. Fertilised eggs and larvae also drift out of sanctuary zones to settle in





**Above** The southern end of Ningaloo Reef, near Gnarraloo Bay, is now included in the marine park.  
*Photo – David Bettini*

**Above right** People may fish in 66 per cent of Ningaloo Marine Park.  
*Photo – Brett Dennis/Lochman Transparencies*

**Left** Tourists at Turquoise Bay.  
*Photo – Bill Belson/Lochman Transparencies*



other areas. For example, research by Dr Mark Westera of Edith Cowan University at Ningaloo Marine Park has shown that there are twice as many emperors in sanctuary zones than in the neighbouring general use zones, where fishing is allowed.

Elsewhere in Western Australia, early results of some research by Dr Russ Babcock from CSIRO on a sanctuary zone at Rottnest Island Marine Reserve show that rock lobsters are appreciably larger and considerably more abundant within the sanctuary zone. The same research has shown similar results for some fish species commonly targeted by recreational fishers.

A recent survey of 80 'no take' zones around the world found that the number of fish in the 'no take' zones increased by 192 per cent; the total weight of fish was higher than in adjacent fished areas; and average fish size was 20 to 30 per cent higher than in adjacent fished areas. In Florida, very

large game fish are almost seven times more common in areas next to a no-take reserve than in fishing areas where no reserve exists. A similar pattern has been recorded for sharks in a tropical 'no take' area off Western Australia, where they are larger and more common than in comparable fished areas.

All of the significant different habitats within the Ningaloo Marine Park are now included in sanctuary areas (the original sanctuary zones were all close to the coast and did not afford any protection to deep water habitats). For similar reasons, sanctuary zones in the Great Barrier Reef Marine Park were recently increased from 4.5 per cent to 33 per cent.

While some recreational fishers have been quite vocal in their opposition to sanctuary zone extensions, many conservation-minded fishers and local business people support the increases to sanctuary zones at Ningaloo. Peter Shaw, a



commercial fisher and charter operator at Coral Bay, while not necessarily agreeing with all areas suggested in the draft plan, supports the concept of increasing sanctuary zones in the Ningaloo Marine Park.

"There is definitely a need for more sanctuary zones in the marine park. You need areas for replenishment of fish stocks. Also, not all people who come to Ningaloo come here to fish. A lot of people go snorkelling and there will be more marine life for them to see in areas that can't be fished."

### New developments

The economic return from tourism is now expected to grow even further, because of an increased public profile for Ningaloo as a result of the marine park extensions, and as developments such as the Exmouth Boat Harbour Resort and Residential Development are completed. However, as use of the area increases through such developments, it is going to be even more vital to protect the attractions that people go to Ningaloo to see. Hence, Ningaloo's new management plan and extended boundaries, and the new marine management area at the Muiron and Sunday islands, will be vital to protect the area's natural marine values and ensure that visitors are able to keep enjoying its natural beauty.



Carolyn Thomson-Dans is a long-time writer and editor for *LANDSCOPE*, with a special interest in the marine environment. She can be contacted on (08) 9389 8644 or via email ([carolynt@calm.wa.gov.au](mailto:carolynt@calm.wa.gov.au)).

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**Executive editor** Caris Bailey.  
**Editors** Carolyn Thomson-Dans, Rhianna Mooney.  
**Contributing editor** David Gough.  
**Scientific/technical advice** Kevin Kenneally, Paul Jones, Chris Simpson, Keith Morris.  
**Design and production** Tiffany Aberin, Maria Duthie, Natalie Jolakoski, Gooitzen van der Meer.  
**Illustration** Gooitzen van der Meer.  
**Cartography** Promaco Geodraft.  
**Marketing** Estelle de San Miguel  
*Phone* (08) 9334 0296 *Fax* (08) 9334 0432.  
**Subscription enquiries**  
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