

The way ahead for Australia's North-west Oceans



MARINE BIOREGIONAL PLANNING IN COMMONWEALTH WATERS



Australian Government

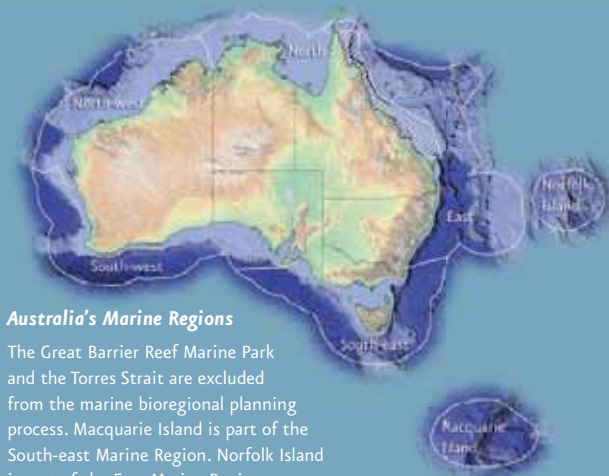
Department of the Environment and Water Resources

Marine bioregional planning in the North-West Marine Region

What are Marine Bioregional Plans?

One way in which the Australian Government is demonstrating world leadership in sustainable oceans management is through the development of Marine Bioregional Plans for our vast ocean territory.

Marine Bioregional Plans are being developed for five marine regions – the South-west, North, North-west, East and South-east under the Environment Protection and Biodiversity Conservation Act (1999). A South-east Regional Marine Plan was completed in 2004 and will be updated as a new South-east Marine Bioregional Plan under the EPBC Act.



To effectively manage our marine environments we need to understand how marine ecosystems function, how our activities affect them and what the key values are that need protecting. Marine Bioregional Plans will consolidate available knowledge to provide the best possible basis for decision-making about the conservation of the marine environment. Marine bioregional planning is also the process the Australian Government is using to identify new Marine Protected Areas (MPAs) to contribute to Australia's National Representative System of MPAs.

As an island nation, the historic wealth and future prosperity of Australia is closely tied to the ocean.

Australia is a world leader in marine conservation and management. The Government's marine bioregional planning programme is about managing Australia's ocean environments sustainably. Sound management is not only important for the marine environment – the livelihoods of many Australians rely on healthy ocean ecosystems.

The sustainable development of the North-west Marine Region is vitally important to Australia's continued economic prosperity. The Region contains a wide range of biodiversity and habitats, some of which are already protected. These environmental assets need to be protected as we develop the industries and resources of the North-west Marine Region.

The States and the Northern Territory have primary responsibility for waters within three nautical miles of their coasts. The Australian Government has jurisdictional responsibility beyond State waters to the 200 nautical mile limit of the Australian Exclusive Economic Zone (EEZ). Marine Bioregional Plans will apply in Commonwealth waters, i.e. those within Australian Government jurisdiction.

At the northern margin of the 150,000 square kilometre Exmouth Plateau are steep canyons and spurs that slope down to the Argo Abyssal Plain, more than five kilometres below the ocean surface. The Cuvier Abyssal Plain extends at a similar depth to the south-east of the Plateau.

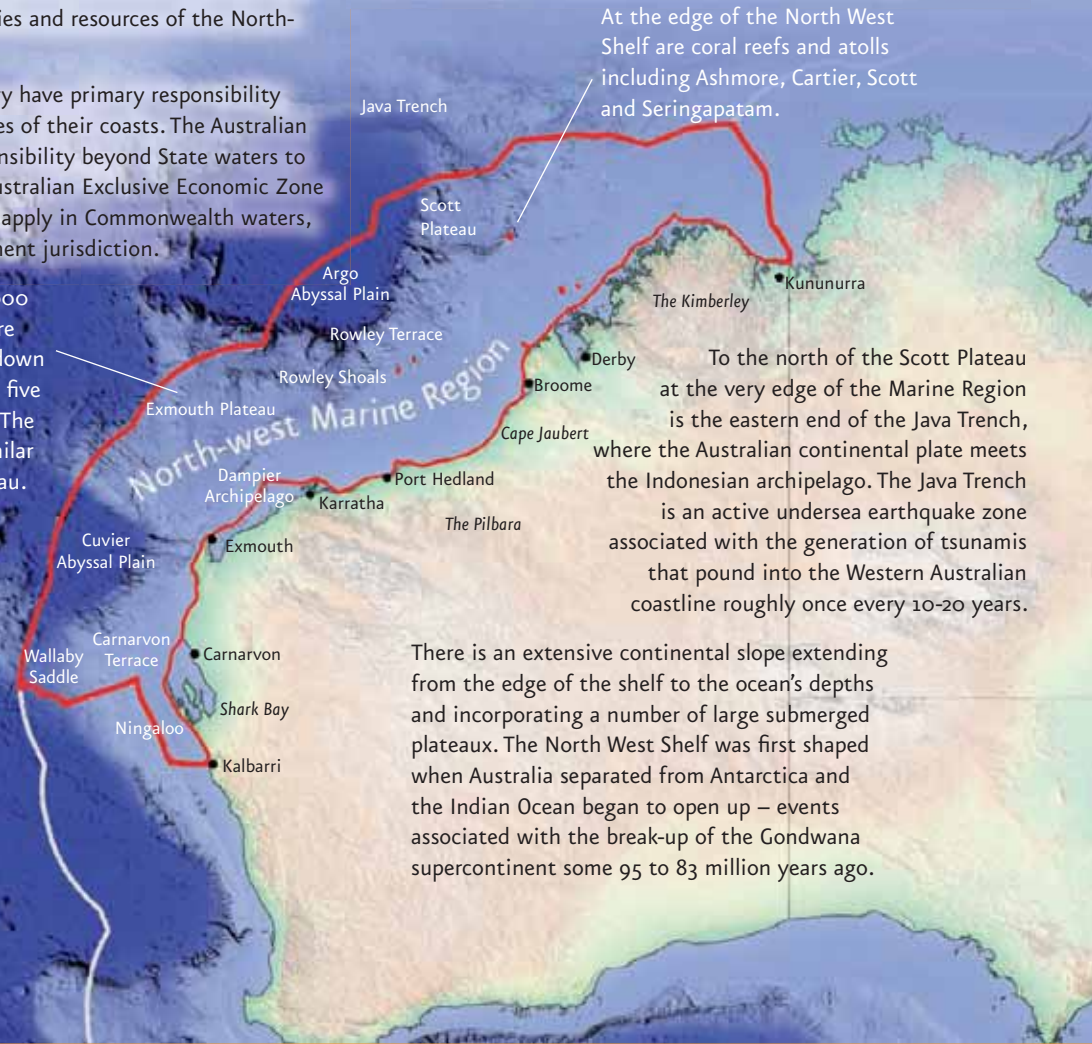
The major components of the continental slope are the Scott Plateau, Rowley Terrace, Exmouth Plateau, Carnarvon Terrace and the Wallaby Saddle. Most of these are separated from each other by large canyons.

The North-west Marine Region covers Commonwealth waters from the Western Australian/Northern Territory border to Kalbarri south of Shark Bay – some 1.07 million square kilometres of ocean. The Region has a diverse range of habitats but its dominant feature is the North West Shelf. In total, the North West Shelf covers some 720,000 square kilometres and extends from North West Cape to Melville Island in the Northern Territory. It ranges in width from about 350 kilometres off Cape Jaubert to 16 kilometres adjacent to Exmouth at the North West Cape.

At the edge of the North West Shelf are coral reefs and atolls including Ashmore, Cartier, Scott and Seringapatam.

To the north of the Scott Plateau at the very edge of the Marine Region is the eastern end of the Java Trench, where the Australian continental plate meets the Indonesian archipelago. The Java Trench is an active undersea earthquake zone associated with the generation of tsunamis that pound into the Western Australian coastline roughly once every 10-20 years.

There is an extensive continental slope extending from the edge of the shelf to the ocean's depths and incorporating a number of large submerged plateaux. The North West Shelf was first shaped when Australia separated from Antarctica and the Indian Ocean began to open up – events associated with the break-up of the Gondwana supercontinent some 95 to 83 million years ago.



An area of important conservation value



Currents exert a strong influence on the distribution of biodiversity in the Region. Many tropical species found within the Region are also found in Indonesian waters. The Indo-Pacific Through Flow brings warm, nutrient-poor water through the Indonesian archipelago to the Region's north.

While the Indo-Pacific Through Flow is important, the current exerting the greatest influence on the Region is the Leeuwin Current. It originates in the waters around the Rowley Terrace, carrying warm water down the Western Australian coast, even as far as the west coasts of Victoria and Tasmania. It is the longest ocean basin boundary current in the world. It is important to the life cycles of many species, and transfers coral larvae south along the Western Australian coast during autumn and winter.

Aided by the Indo-Pacific Through Flow and the Leeuwin Current, the reefs on the edge of the North West Shelf act like stepping stones, facilitating the transfer of coral and other genetic material from as far as the eastern Indonesian archipelago to Ningaloo and reefs further south.



The Region's most productive waters are those associated with the coral atolls along the edge of the North West Shelf and at the shelf-break at Ningaloo, adjacent to North West Cape. Here, nutrients upwelling from deeper waters support swarms of tropical krill, which attract the area's famous seasonal aggregations of whale sharks.

Elsewhere in the Region, a major driver of ecosystem productivity is the upwelling of nutrients contained in sediment, often as a

result of cyclones and wet season rains. Cyclones are capable of shifting millions of tonnes of seafloor sediment, and high seasonal rainfall, particularly along the Kimberley coast, results in large amounts of sediment being washed onto parts of the continental shelf.

Tides too have a major impact on sediment transport and are significant drivers of coastal and ocean floor processes on the shelf. Some of the largest tidal ranges in the world occur along this coast, reaching up to 12 metres in the Kimberley.



Although relatively little is known about the biodiversity of the deeper parts of the Region, there is a variety of habitats thought to support a wide range of species. About 1400 species of fish, for example, have been identified. The Region also hosts a number of important aggregation areas for humpback whales, which migrate northward from mid July to early August to mate and give birth.

Many of the Region's marine creatures are of national and international importance and are protected under Commonwealth law. Humpback whales and other cetaceans, sea turtles, dugongs and whale sharks are all protected species found in both Commonwealth and State waters within the Region.

Many inshore environments under Western Australian jurisdiction are important to the maintenance of marine ecosystem health and to the life cycles of species protected by Commonwealth law. The Lacapedes Islands and islands off the Pilbara coast, for example, are important nesting sites for turtles and seabirds that feed in Commonwealth waters.

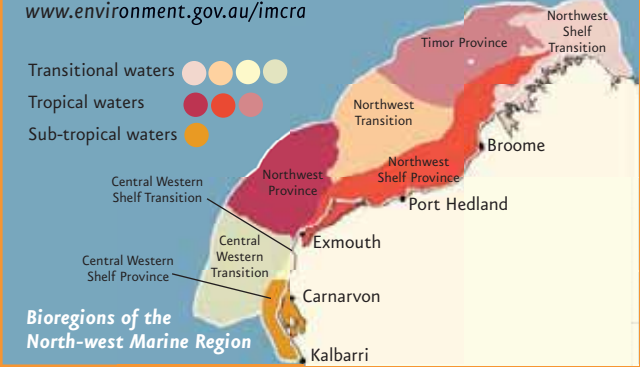
The population of hawksbill turtles in Western Australia is the only large population remaining in the entire Indian Ocean, with Rosemary Island in the Dampier Archipelago the largest rookery. Shark Bay has some of the largest and most diverse seagrass meadows in the world. It is home to one of the world's largest dugong populations and is the site of an overlap between temperate and tropical seagrass species.

The Dampier Archipelago is a group of 42 islands that hug the central Pilbara coast and is considered the richest area of marine biodiversity in Western Australia. Currently some 229 species of hard coral, 543 crustacean species, 275 sponges, 182 species of marine algae and 650 fish species have been identified there, but many more may yet be discovered.

The Bioregions of the North-west Marine Region

Each marine region has been divided into bioregions. A bioregion is an area that contains geographically distinct groupings of plants and animals. For the purpose of marine planning in the North-west Marine Region, the Australian Government recognises eight bioregions, one of which extends into the neighbouring North Marine Region.

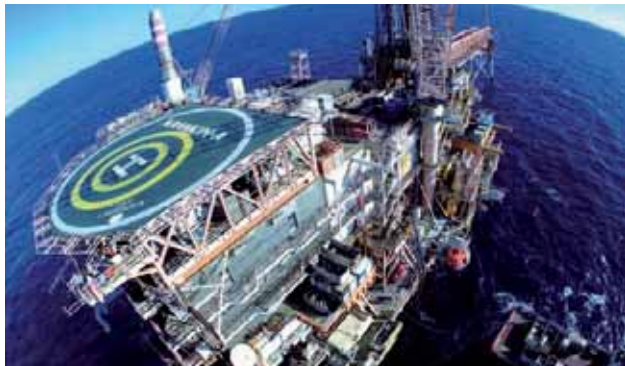
These bioregions assist marine planners describe and protect the ecological characteristics of the Region. For more information on these bioregions see the Integrated Marine and Coastal Regionalisation for Australia at www.environment.gov.au/imcra



How we use the North-west Marine Region

Oil and gas exploration and development in both Commonwealth and State waters is a major economic activity in the North-west Marine Region. Western Australia is the largest petroleum producer in Australia. About 97 per cent of the State's oil and gas production comes from the North West Shelf and the Region has 79 per cent of Australia's known gas reserves.

The industry is undergoing rapid expansion. The North West Shelf Venture is Australia's largest resource development project, with investment totalling more than \$14 billion since 1984. It supplies natural gas to the domestic market, liquefied natural gas (LNG) to Japan, and condensate, crude and liquefied petroleum gas (LPG) to international markets. There is also significant offshore oil and gas exploration and production in the Carnarvon Basin and Exmouth Plateau as well as north of Broome in the Browse and Bonaparte Basins.



The North-west is an increasingly popular tourist destination with domestic and international travellers. Between 2004 and 2005 there were approximately 820,000 visitors to the Region, who spent more than \$480 million. Many tourism activities are on land, but an increasing number of visitors are engaging in marine activities including diving at Ningaloo Marine Park, charter fishing for sailfish and marlin, or cruising the spectacular Kimberley coast. Trevally, snapper and emperor fish are the preferred catch of recreational fishers, while Spanish mackerel and other offshore species are increasingly the targets of charter fishing operations.

While significantly less valuable, commercial fishing is also an important activity in the Region. The Australian Government managed fisheries are the Western Deepwater Trawl Fishery, which targets emperor, snapper and bream, and the North West Slope Trawl Fishery, the major catch of which is the crustacean, scampi. In 2003-04 these fisheries were valued at \$2.13 million. The Western Australian Government manages several valuable prawn fisheries in the Region, as well as tropical finfish and shark fisheries. These Western Australian fisheries had a gross value of production in 2005 of \$71.2 million. In 2001 about 700 people were employed in the commercial fishing industry across the North-west.

Pearling is an important marine industry in the Region with cultured pearl production using both wild catch and hatchery reared pearl oysters. The industry is worth more than \$200 million a year in exports and employs around 800 people in the Region.

Aboriginal people have inhabited north western Australia for thousands of years. A vibrant Aboriginal culture exists to the present day with people continuing to use the Region for fishing and hunting and increasingly for commercial activities like cultural based eco-tourism. Aboriginal people understand the land and sea to be intimately connected. Together they form Aboriginal peoples' concept of 'country'. Aboriginal people refer to the oceans, estuarine and coastal environments, and the places of cultural significance they contain as 'sea country'.



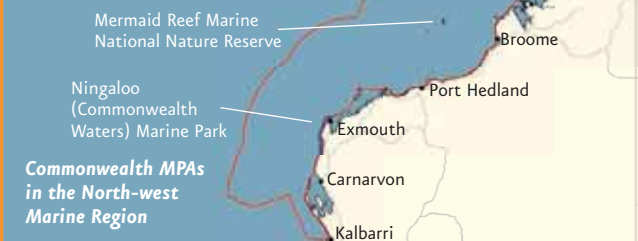
Marine Protected Areas

Over 6,500 square kilometres of Commonwealth waters in the North-west Marine Region are already protected in four MPAs.

The Ningaloo Marine Park contains one of Australia's most significant coral reef systems. It includes both Commonwealth waters (2,436 square kilometres) and State waters (2,640 square kilometres). Ningaloo supports a wide range of corals and is a haven for dugongs, turtles, sharks and whales. The reef's rapid drop-off enables migrating whale sharks and pelagic fish to be found unusually close to shore – a popular tourist feature. The Park is jointly managed by the Australian and Western Australian Governments.

The Ashmore Reef National Nature Reserve and Cartier Island Marine Reserve are Australian Government strict nature reserves protecting unique and vulnerable tropical marine species and ecosystems. Ashmore's seagrass beds are an important source of food for dugongs, turtles, fish, sea urchins and crustaceans. Its tidal flats are internationally important wetland feeding grounds for migratory shorebirds and breeding seabirds. Cartier Reserve has extensive tidal sand flats and also supports breeding sea turtles.

Mermaid Reef Marine National Nature Reserve is a shelf-edge reef – one of three reefs forming the Rowley Shoals. Mermaid Reef Reserve is managed by the Australian Government while the others – Clerke and Imperieuse Reefs – are managed by the Western Australian Government as the Rowley Shoals Marine Park.



Marine Bioregional Plans

It is important that all those who use and care for the ocean and rely on its ongoing health understand how Marine Bioregional Plans may affect the Australian community.

In 2005, the Australian Government brought its programme of regional marine planning directly under the EPBC Act – one of the most comprehensive pieces of environmental legislation in operation anywhere in the world. Under this new approach, Marine Bioregional Plans will now be developed under section 176 of the EPBC Act.

Section 176 of the EPBC Act provides a general description of the provisions a Marine Bioregional Plan may include:

- descriptions of the biodiversity, economic, social and heritage values of the Region;
- the objectives of the Plan relating to biodiversity and other values;
- priorities, strategies and actions to achieve the objectives;
- how the community can be involved in the Plan; and
- mechanisms for monitoring and reviewing the Plan over time.

How will Marine Bioregional Plans be used?

The Minister for the Environment and Water Resources is required to consider the contents of Marine Bioregional Plans when making decisions under the EPBC Act that are relevant to marine regions. For example, in considering whether a fishery should be granted export approval, the Minister may be guided by the Plan in considering the potential impacts of that fishery on the key conservation values in that marine environment.



The Marine Bioregional Plans will help marine industries by ensuring that Government decisions will be made more consistently and will give industry clear advice about the key conservation values and the Government's conservation priorities in each region.

Did you know that the Commonwealth marine environment is a "matter of national environmental significance" under the EPBC Act?

This means that anyone proposing to take an action that may have a significant impact on the marine environment should refer that action to the Minister for the Environment and Water Resources, who will assess whether the action can take place.

What does this mean for industry?

Marine industries will greatly benefit from this new approach. Once a Marine Bioregional Plan is in place, marine industry proponents will have a consolidated information system to draw on to help them understand the obligations they have under the EPBC Act for that marine region.

Industries have generally been supportive of the EPBC Act, because it focuses on achieving environmental outcomes rather than prescribing ways in which they must be achieved. This means that industry has more flexibility in how it meets obligations.

When will the marine bioregional planning programme be completed?

Marine Bioregional Planning is underway and being led by the Marine and Biodiversity Division of the Department of the Environment and Water Resources. The Plans will be progressively completed over the next four to six years.



How do we engage stakeholders?

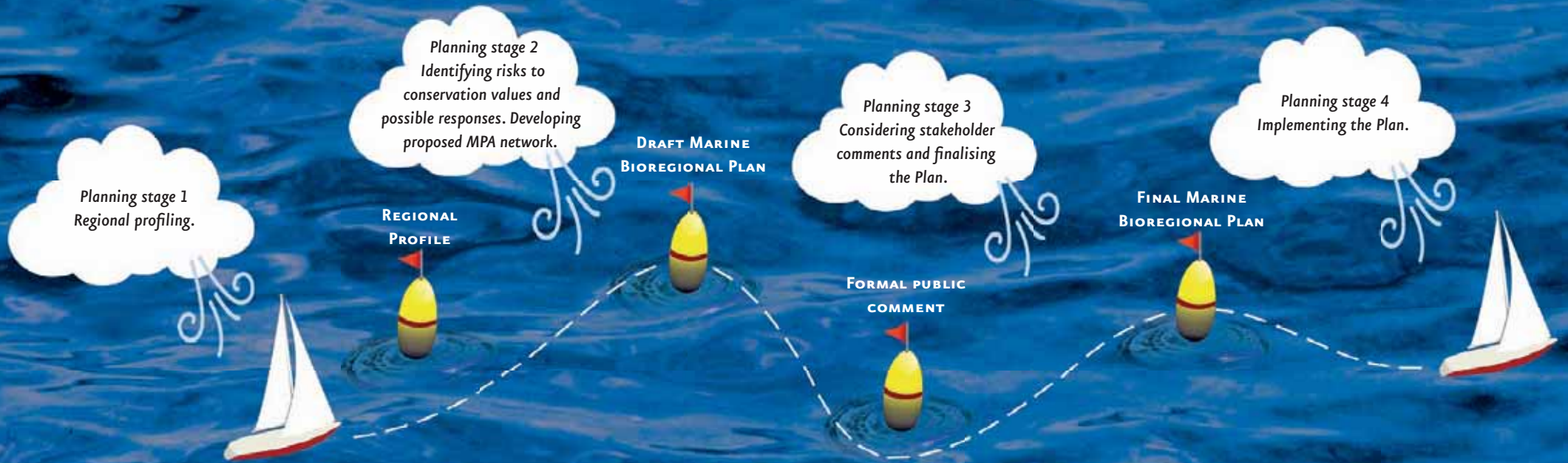
The Government recognises the importance of all oceans users and coastal communities and will actively engage them in the planning process. Marine Bioregional Plans are being developed for the marine regions adjoining the North-west Region, the North and South-west Marine Regions. The Government will seek to ensure that stakeholders with interests in adjoining marine regions have opportunities for engagement.

How are the State Governments involved?

Many ecological processes work across both State and Commonwealth waters. The Western Australian Government has responsibility under the Offshore Constitutional Settlement for the management of most fish stocks out to the 200 nautical mile limit of the Australian Fishing Zone off Western Australia. In the North-west, the Australian Government will continue to work cooperatively with the Western Australian Government in developing and implementing Marine Bioregional Plans.



Key stages of the North-west Marine Bioregional Plan



Stage 1 – The Regional Profile

The first step in the planning process is to gather information about the Region. The Department of the Environment and Water Resources has been working with major national and regional scientific institutions, as well as other organisations, to bring together and evaluate information about the geology, oceanography and ecology of the Region.

This information will be published in a Regional Profile. The Profile will also contain economic and social information relevant to the Region.

While the Profile will not contain specific MPA or other conservation proposals, it will include details about the process for identifying MPAs. It will also identify the major habitat types or ecosystems that will be considered for representation in the MPA network. The MPA network will be developed over the next two stages of the planning process.

Development of the Profile is expected to take around 12 months. During this time the Department will contact stakeholder groups to brief them on the process and on the progress of the Profile, and to identify how best to engage with them during the rest of the planning process.

Stage 2 – The Draft Plan

Stakeholders will have an opportunity to provide input to this next stage of the planning process, which focuses on identifying conservation priorities for the Region, threats to those priorities and the options to address them. The social and economic impacts of proposed conservation measures, including possible MPAs will be evaluated, in consultation with stakeholders.

It will take about 12 months to develop a Draft Marine Bioregional Plan following the release of a Regional Profile. Following publication of the Draft Marine Bioregional Plan there will be a period of formal public comment, which is required under the EPBC Act.

Stage 3 – The Final Plan

The Government will consider public comment on the Draft Plan before concluding the Final Plan. At this stage, the final shape of new MPAs – such as location, size and zoning – will be decided and any action necessary to give effect to the Plan will be considered by Government. The Government will also carefully consider the impacts on industry and people (for example, on fishing enterprises displaced from MPAs) before the Marine Bioregional Plan is formally adopted.

Stage 4 – Implementation and Review

Once the Marine Bioregional Plan is finalised, it will guide future Australian Government conservation activities in the Region. During that time, the Minister will be guided by the Plan for all decisions affecting the Region that the Minister must make under the EPBC Act. An implementation strategy for the Plan will be developed and the formal legal processes to declare the MPA network will commence. The Plan will be reviewed from time to time in light of new information and emerging priorities.

Stakeholder and community consultation

The planning process provides several opportunities for stakeholders to have input and raise issues. The Government regards this as an important part of the process and will be actively seeking the engagement of all groups.

Find out more

For more information about marine bioregional planning visit the Department of the Environment and Water Resources website www.environment.gov.au/mbp

For more information on the EPBC Act, visit www.environment.gov.au/epbc

For more information about MPA development and management, see www.environment.gov.au/coasts/mpa

If you have questions about marine bioregional planning in any of Australia's marine regions, email oceans@environment.gov.au



Image information

Cover: Whale Shark - Glen Cowans. Compass illustration - Chloe Lucas. Frigate bird chicks at Ashmore - Glenn Kriton and the Department of the Environment and Water Resources (Environment). Goodwyn oil and gas platform on the North West Shelf - courtesy of Woodside Petroleum. Sea turtle hatchling - Robert Thorne (Environment).

Page 1: Maps of Australia's Marine Regions - Commonwealth of Australia.

Page 2: Coral and fish at Ashmore Reef - Glenn Kriton (Environment). Dugong in Shark Bay World Heritage Area - Paul Anderson (CALM). Blue-spotted fantail stingray, Mermaid Reef - Naomi Wolfe (Environment). Map of bioregions in the North-west - Commonwealth of Australia.

Page 3: Rankin gas production platform on the North West Shelf - courtesy of Woodside Petroleum. Brendan Chaquabor, Celia Chaquabor and Kevin Dougal fishing on the Dampier Peninsula - courtesy of Kimberly Land Council. MPAs in the East Marine Region - Commonwealth of Australia.

Page 4: Dolphins in Shark Bay - Ian Anderson (CALM). Divers - Glen Cowans. Frigate bird chicks at Ashmore - Glenn Kriton (Environment).

Page 6: Blacktip reef shark and diver, Mermaid Reef - Naomi Wolfe (Environment). Hawksbill turtle - Glen Cowans. Fishing boat - courtesy of WA Department of Fisheries.

Back cover: Blowfish - Glen Cowans. Brendan Chaquabor, Celia Chaquabor and Kevin Dougal fishing on the Dampier Peninsula - courtesy of Kimberly Land Council. Raccoon butterflyfish, Mermaid Reef - Naomi Wolf (Environment). Dolphins in Shark Bay - Ian Anderson (CALM).

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