



PILBARA and  
Eighty Mile Beach:



The human 'footprint' in the Pilbara and lower west Kimberley is growing and there is a need for more integrated marine planning and management so our marine environment remains in excellent condition. The State Government is therefore planning to expand the marine parks and reserves system in the Pilbara and Eighty Mile Beach regions.

**By Judy Davidson and Carolyn Thomson-Dans**

multiple objectives, one marine planning process

In December 2006 the State Government approved the Department of Environment and Conservation (DEC) leading a whole of Government effort to expand the marine parks and reserves system in the Pilbara and Eighty Mile Beach regions. Six study areas have been identified, within which marine parks and reserves will be proposed.

The Pilbara and Eighty Mile Beach coast supports significant marine biodiversity values such as mangroves, coral reefs, sponge gardens, seagrass beds, seaweed meadows and coastal formations such as barrier and offshore islands, protected lagoons, deltas, rocky shores and sandy beaches. These diverse habitats are home to marine turtles, dugongs, whales, dolphins, seabirds, fish and many colourful invertebrate species.

The area is extremely important for flatback turtles (*Natator depressus*), which nest on sheltered mainland beaches with intertidal mudflats and turbid waters in the Kimberley and Pilbara and on several islands in the Pilbara. Flatback turtles are a threatened species and only nest in Australia, making each and every rookery important. Other species of turtle recorded in the region include green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*), loggerhead (*Caretta caretta*) and leatherback turtles (*Dermochelys coriacea*).



### The long mud

The scenic Eighty Mile Beach, south of Broome, is the longest uninterrupted beach in WA, stretching for about 220 kilometres between Cape Missiessy and Cape Keraudren. Its tidal mudflats are exceptionally wide, extending for several kilometres out to sea in many places. They support rich communities of invertebrates, including colourful sponges and soft corals that are sometimes exposed at very low tide, as well as millions of crustaceans, molluscs and worms that live in the muddy sediments.

Tiny but amazing feathered visitors fly all the way from the northern hemisphere each year to feed on the wealth of marine invertebrates that live in the mudflats of Eighty Mile Beach. Some of the birds may have flown stretches of more than 8,000 kilometres without stopping. On arriving from the northern hemisphere in about September, these migratory birds spread out to feed over the exposed sand and mudflats of the beach at low tide. At high tide they congregate in immense flocks on the narrow beach slopes and exposed sand shoals—an incredible spectacle. Without areas so rich in resources on which to feed, these important shorebirds would not survive their long migration back to their breeding areas in the tundra of the northern hemisphere, which are covered in snow and ice for most of the year.

Eighty Mile Beach is one of only a dozen or so areas in the world with huge intertidal flats rich in shorebirds and, as such, has been designated as a wetland of international importance. About 90 per cent of the birds are concentrated in the northern section of the beach between Cape Missiessy and Wallal. Peak counts of well over half a million shorebirds have been made along Eighty Mile Beach and numerous species of these shorebirds occur there in internationally significant numbers. For example, about half of the world's great knots use Eighty Mile Beach during their annual migration. The area is also believed to be used by the entire population of distinct subspecies of red knots and bar-tailed godwits. On 7 February 2004, an estimated 2.88 million oriental pratincoles were recorded at Eighty Mile Beach, a



*Previous page*

**Main** Sandpipers and other shorebirds congregate in the shallow waters along Eighty Mile Beach.

*Photo – Jiri Lochman*

**Above** Sponges exposed at low tide near Cape Keraudren.

*Photo – Steve Bunce*

**Left** Dugong feed in seagrass areas of the Pilbara and Eighty Mile Beach.

*Photo – Geoff Taylor/Lochman Transparencies*



**Above** The wide fringing mudflats of Eighty Mile Beach make it one of the world's most important areas for migratory wading birds.

*Photo – David Bettini*

**Left** The threatened flatback turtle has several rookeries in the Pilbara and Eighty Mile Beach area.

*Photo – Jiri Lochman*



(*Avicennia marina*) are low and sparse, and frequently interrupted by bare mudflats. A few stunted red mangroves (*Rhizophora stylosa*) grow at the river mouth.

North Turtle Island and Little Turtle Island lie about 20 kilometres off the coast north-west and west of Larrey Point. Bedout Island is a small mid-shelf island about 40 kilometres north of Poissonier Point. These islands are fringed by coral reefs and are important marine turtle and seabird nesting areas.

### **Cowrie Beach, Depuch Island and Sherlock Bay**

The coast between Cape Thouin and Cape Lambert is complex, consisting mainly of mangroves interspersed with several low rocky headlands and sections of beach.

Cowrie Beach, south-west of Cape Thouin and about 140 kilometres east of Karratha, is one of the largest nesting areas for the threatened flatback turtle in WA, with several hundred females laying their eggs on the beach each year. DEC is undertaking long-term

surprise to scientists as the previous estimated population for the whole East Asian-Australasian flyway had been just 75,000.

Large areas of Eighty Mile Beach are inaccessible, although there is a well-patronised caravan park at Wallal. The most popular activities are beachcombing and enjoying the spectacle of the long beach particularly at sunset and, if the tides are right, fishing and four-wheel driving.

### **Cape Keraudren, De Grey River and Turtle Islands**

At the southern end of Eighty Mile Beach is Cape Keraudren, which has a scenic landscape dominated by limestone formations (headlands, offshore reef

platforms and inland outcrops), tidal flats, mangroves, sandplains, sand dunes and sandy beaches. The area has a unique geology and geomorphology, extremely diverse and rich ecosystems and a long history of use by Aboriginal people that continues to the present day. A 4,800-hectare reserve at Cape Keraudren is managed by the Shire of East Pilbara and has a resident ranger. About 4,500 campers visit Cape Keraudren every year, many of them retired travellers, who stay for about a week at the Cape.

To the west of Cape Keraudren, the De Grey River enters the sea at Breaker Inlet between Poissonier Point and Larrey Point. The river mouth has a delta of extensive mud and sand banks. Here, white mangroves



turtle tagging and a fox baiting program in cooperation with the owners of the adjacent Mundabullangana Station.

There are many small near-shore islands scattered along this coast—remnants of an eroded shoreline collectively known as the Forestier Archipelago after Baron Forestier, a distinguished general who fought with Napoleon. At their centre is the rocky Depuch Island, which features an interesting history. Earlier this century nearby Balla Balla Harbour was an important port for the copper mines of the Whim Creek district. A large, iron sailing ship, the *Crown of England*, was wrecked on Depuch Island and the *Concordia* was driven ashore nearby during a cyclone on 22 March 1912 that claimed the lives of at least 15 people. Depuch Island is rich in Aboriginal rock art and a deep water port that was planned there in the 1960s was abandoned at the behest of the Western Australian Museum because of the

**Above** Cape Keraudren is popular with campers.

*Photo – David Bettini*

**Left** Fishing at Eighty Mile Beach.

*Photo – Dennis Sarson/Lochman  
Transparencies*

*Opposite page*

**Above right** Mangroves protect shorelines from erosion and provide habitat for fish, birds and other animals.  
*Photo – Marie Lochman*

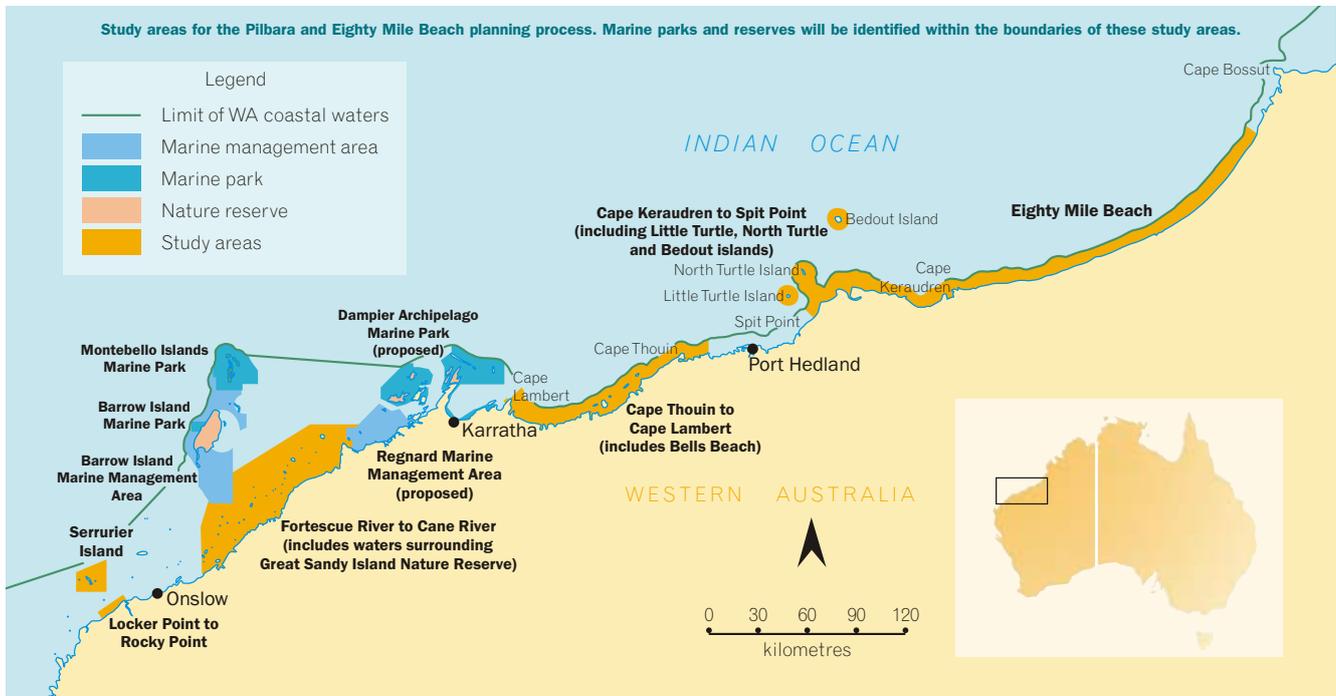
extensive art and cultural values. With increasing industrial pressure on the Pilbara coast as a result of the resources boom, the world's biggest bulk port is proposed for nearby Ronsard Island in the Forestier group.

Further west, Cossack, 12 kilometres from Roebourne and once the major port of the Pilbara region and the site of the first pearling industry in WA, has special interest for natural historians. All seven species of mangrove found in the Pilbara can be seen growing together along the shores of Butchers Inlet, within easy walking distance of Cossack.

### **Robe River and Great Sandy Island Nature Reserve**

Another section of coast that will be considered during the planning process stretches from the mouth of the Fortescue River to that of the Cane River, and includes the waters surrounding the Great Sandy Island Nature Reserve and the Mary Anne group of islands. This area is relatively remote and untouched. The Robe and Fortescue rivers have inactive deltas, a distinctive coastal landform that is not otherwise seen in the Pilbara.

A 75-kilometre plus stretch of coastline lying on either side of the Robe River contains the most diverse mangrove forests found on the Pilbara coast. Seaward of the mangroves, there are many small, low barrier islands close to the shore which frequently have fringing mangroves around them.



Intertidal mudflats, rock pavements and their associated mangroves as well as coral reefs are particularly well developed around the Mary Anne group of islands. Mangroves are an important source of nutrients for adjacent marine ecosystems and provide excellent nursery areas for many fish species. Turtles, particularly young ones, use these areas for shelter and food. The mudflats are rich in burrowing invertebrates and are important feeding areas for migratory wading birds. A little offshore, dugongs and various species of turtles feed on extensive beds of seaweed and seagrass. Corals grow

wherever they can find a foothold forming reefs, bommies and lagoons around the offshore islands. Many of the islands provide nesting places for green, flatback and hawksbill turtles.

### Serrurier Island

A group of offshore islands and emergent rocks in the western Pilbara includes Serrurier, Flat and Bessieres islands. They form a fringing reef system growing on Pleistocene rock platforms in the middle of the continental shelf. These islands are remote and surrounded by clear water, and are therefore among the most attractive

in the Pilbara. They have extensive fringing coral reefs and luxuriant corals on the slopes of rock platforms that offer attractive underwater scenery. There is a high diversity of coral reef fish and invertebrates and well-developed seagrass beds in the shallows.

Ospreys, white-breasted sea-eagles, Caspian terns and crested terns nest on the islands and the wedge-tailed shearwater rookery on Serrurier Island Nature Reserve is one of the largest in the Pilbara. Serrurier Island is also an important nesting area for green and loggerhead turtles and possibly for other turtle species.



**Left** Aerial view of the Pilbara coast near Weld Island.

*Photo – Richard Woldendorp*

**Below** Shells on Eighty Mile Beach.

*Photo – Kate Fitzgerald*

linkages for the local community (such as future management arrangements with Aboriginal people and benefits for local businesses, industries and tourism ventures).

To help ensure scientific rigour in identifying appropriate marine park and reserve boundaries and to allow a thorough analysis of options, DEC will use a systematic reserve planning approach and may seek advice from an independent scientific panel in developing principles to guide planning in the region. A Government Interagency Working Group has been established to develop the proposal and consider cross-agency issues early in the planning process. Community engagement programs will be implemented to ensure stakeholders and the community have opportunities to provide input to and be involved in the planning process.

## Multiple uses

The Pilbara and Eighty Mile Beach region supports a growing mining and petroleum industry, commercial fishing and many recreational uses such as nature appreciation, boating, fishing, scuba diving and four-wheel driving. The area is an important cultural landscape for Aboriginal people, from both historical and contemporary perspectives, and contains some extensive outdoor rock art galleries and other significant sites.

Marine and coastal activities are undertaken by many of the region's residents who live in the towns of Onslow, Roebourne, Dampier, Karratha, Wickham, Point Samson, Port Hedland, South Hedland, Pannawonica, Newman, Paraburdoo, Tom Price and Broome, and on pastoral stations and other remote communities along the coast.

The region's economy is fuelled mainly by the mining and petroleum industries and much of the State's mineral and petroleum production is from the Pilbara region. Several major commercial fisheries and the pastoral industry also contribute to the

economy and community. At present, tourism is a relatively small contributor to the region's economy but it is growing and is likely to be more important in the future.

## Multiple objectives

Western Australian marine parks and reserves have a multiple-use management framework that recognises a range of human uses and community aspirations while protecting the marine environment.

The project to expand the marine parks and reserves system in the Pilbara and Eighty Mile Beach regions aims to better protect marine biodiversity, threatened marine animals, habitats of special significance and unique areas. The design and location of the marine parks and reserves will draw on comprehensive, adequate and representative reserve design criteria and information collected during the planning process. This will help the State Government maximise biodiversity conservation outcomes while minimising impacts on cultural values and commercial and recreational users. Planners overseeing the process will also aim to develop opportunities and



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