

Shark Bay



Shark Bay no doubt deserves its fearsome name, but it is home to many creatures besides sharks. Dr Barry Wilson, Director of Nature Conservation with CALM, looks at Shark Bay from several perspectives, and at the Region Plan which will guide future development in the Bay and ensure the preservation of its very special features.



G. Freudenheim

There are many ways to look at Shark Bay. Perhaps that is part of the magic of the place. The early Aboriginal inhabitants would have found easy pickings there as far as food is concerned. The lack of potable surface water must have caused constant hardship, yet no doubt they loved the place as home.

When in 1712 the survivors of the Dutch shipwreck *Zuytdorp* scrambled up the mighty cliffs of Edel Land which now bear the name of their stricken ship, they must have gazed at the waterless dunes of the hinterland in utter despair. Yet Francois Peron, naturalist with the French scientific Baudin Expedition which spent some months

in these waters in 1801, found the arid and sparsely vegetated landscapes abounding with strange animals unknown to European science at the time. We can picture him delighting in his release from tedious months below deck as he roamed these red dunes, collecting specimens to take back to the natural history museum in Paris.

What privations the European graziers must have faced when they settled in these bleak lands in the late 19th century, but what joy when the sparse vegetation turned out to produce fine wool. Their vision of Shark Bay would have been of hardship and opportunity.

At Monkey Mia wild dolphins make friends with people - but are free meals the real motive? (left).

Local fishermen spot for schools of whiting and mullet in the shallows of the bay (right).

Red dunes of Peron Peninsula contrast vividly with the blue and green shallows of Big Lagoon (below).



B. Wilson



Can you imagine what the young Malay pearl divers made of this place, so different from their native land, when they were brought down in the late 1800s to help fish the little pearls which are so abundant on the bay's shallow banks.

In modern times the high-flying jet passenger looks down on Shark Bay and sees one of Earth's most breathtaking land-seascapes, a complex jigsaw pattern of ochre red land rimmed with stark white beaches, patched with round silver salt lakes and interfingered with brilliant green and blue-black sea inlets.

On the ground the modern-day traveller may not be impressed with the low relief, scrubby red landscapes - until a corner of the road is turned and there is a vista of long curving beaches, red cliffs and sparkling green bays. This vision of Shark Bay is of distance, spaciousness, symmetry, bright light and vivid colour-contrasts.

But it is in the mind's eye that the diversity of perceptions of Shark Bay is most manifest. After more than a century of non-Aboriginal settlement some see the place in terms of home and personal heritage, or a source of natural produce and income, others as a refuge from the fast-lane, and others as a place on the brink of development and commercial opportunity. Many outsiders see it as a place for a very different kind of holiday, a wilderness where the

Bleak but magnificent, the barren slopes of Eagle Bluff overlook the protected waters of Freycinet Inlet (top left).

The formidable Zuytdorp Cliffs south of Steep Point were the site of the wreck of the Dutch vessel *Zuytdorp* in 1712 (left).

Big Lagoon on Peron Peninsula is a complex system of hyper-saline embayments which, besides their visual attractions, serve as nursery areas for fish (right).

G. Freudensthaller

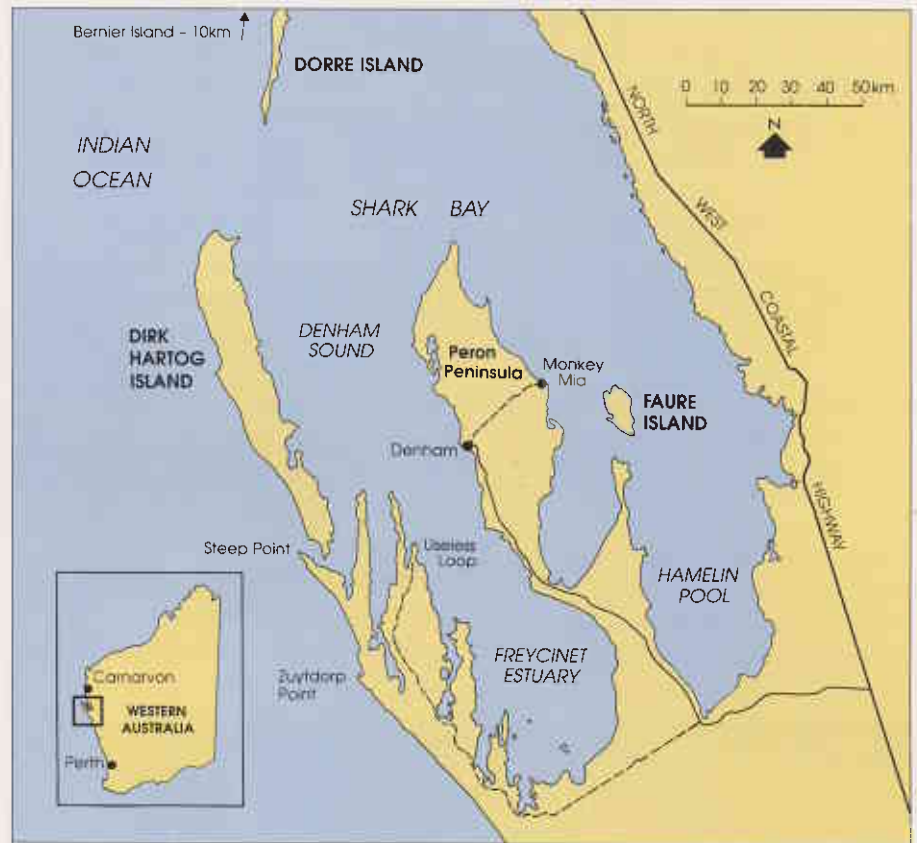


fishing is fantastic and there is space to be self-reliant and free. Some, looking into the smiling eye of a dolphin at Monkey Mia, see something intangible which, though not understood, pulls at the heartstrings and leaves indelible memories. And some see Shark Bay's wildlife, wilderness, unique scenery and environmental features in terms of national heritage. Practically everybody sees Shark Bay as a special place.

In 1898 a tiny settlement, now known as Denham, was established on Peron Peninsula, as a base for the lucrative pearl fishery. It was one of the world's most remote villages, accessible only by sea, about 700 km from the small English colony on the Swan River. Getting to Denham was an adventure in those days. The small multi-racial community there lived in isolation from the world.

After World War II, rough and ready airstrips were constructed near Denham (the two existing strips may be described in those terms still) and a formed road was built. Although the pearl-fishing industry collapsed, a new scale fishery was established with several small processing factories in Denham. And a saltworks was constructed at Useless Loop, with its own small town and ship-loading facility, taking advantage of the high natural salinity in one of the shallow inlets and the extremely high evaporation rate.

Then in 1985 an event of immeasurable significance occurred. A sealed highway was constructed linking Denham to the NW Coastal Highway. Although it is a long way to go, access in and out of the town is now safe, easy and quick. The Shark Bay community remains remote, but no longer isolated. Fishing, grazing and mining continue as before, but tourism now looms as a new and flourishing industry in the district and the life-style of



the local people can never be quite the same.

A community's response to rapid change of this magnitude is inevitably nervous and mixed. While welcoming the new job opportunities for young people and new community facilities provided by increasing local revenue, many people find their familiar daily routines disturbed and there are differing views about the directions and pace of change. The key to resolution of these issues is planning and, most essentially, involve-



ment of the local people in the planning process.

It was for these reasons that the State Government set up a land-use planning project in Shark Bay in 1986. A technical working group was established under the wing of the State Planning Commission and the Department of Conservation and Land Management, in consultation with the Shark Bay and Car-

narvon Shire Councils. A Consultative Committee of local people was appointed to ensure two-way exchange of information and opinion. The Shark Bay Region Plan is the end result, after two years of office and field studies, discussion papers, workshops and public meetings, and direct discussions with individuals. The plan was adopted by the Government in March 1988 as a guideline for the development of the Shark Bay Region into the 21st century.

The plan has identified in broad terms the environmental, cultural and economic resources of the Shark Bay Region, and proposed a scheme by which they may be protected, conserved and utilised in a balanced way. There are many aspects of the natural environment of Shark Bay which warrant protection in their own right as part of Australia's natural heritage. Some of its renewable natural resources, e.g. its pastures, fisheries and evaporites (salts), are best managed for sustained yield. The Region Plan seeks to determine the best and most equitable use of each area of land and water to meet all these objectives.

Tourism is identified as the industry with most potential for further development. Tourism is based directly on the environment and the natural features of the region. People come to Shark Bay to enjoy the fishing, and the scenery, spaciousness and sunshine, to visit the dolphins, to explore the remote beaches and to experience the pleasure of being human in a friendly wilderness. Like any other industry, tourism carries with it the danger of over-exploitation and destroying the resource upon which it depends. It is necessary to identify the assets and use them carefully.

Most of the land in the region is currently assigned for pastoral use. Pastoralism has served the region

well, but some areas are not well-suited to this use. For example, the coastal lands in the south-west corner of the region are vulnerable to erosion, but they have magnificent scenery and high wildlife conservation values. Similarly, although the northern part of Peron Peninsula is moderately productive pastoral land, it has much greater value to the community for its scenic and recreational potential. Consequently, the Region Plan proposes that significant parts of the pastoral lands revert to public use as national parks. The areas remaining in pastoral leases are to be managed to protect nature conservation values as well as for grazing.

In spite of the aridity of the Shark Bay landscape it has been known since the days of Peron that the terrestrial fauna and flora of this region is diverse and of great scientific interest.

On Bernier and Dorre Islands (both named by the early French explorers) there are five species of mammal, two of which are now extinct on the Australian mainland and survive only on these two islands. Given the small size of the islands, those species must be considered to be on the brink of total extinction. The two islands are already declared nature reserves and their careful management is obviously a critical responsibility for the State. Research may show

how the mainland habitat could be restored to a condition suitable once more for these mammals. Careful translocation programs may then allow re-establishment of populations on the mainland, so giving these species a chance to avoid extinction. Because of their shape, the peninsulas and prongs of mainland Shark Bay, which are proposed as national park or nature reserve, lend themselves to a rescue mission of this kind.

The undulating plains and dune fields of the land south of Shark Bay are of special interest to botanists and biogeographers because they straddle the overlap zone between the Eremean and South West Biogeographical Provinces. The vegetation in the south of the area consists of plants typical of the South-west; its flora is diverse and includes many gloriously flowering shrubs and trees. A portion of this important botanical treasure is already preserved in the Cooloomia Nature Reserve, although its remoteness deters effective protection against fire and feral animals. The Region Plan proposes that the area of the reserve be greatly increased to include parts of adjacent pastoral



leases which have limited pastoral values.

The mighty Zuytdorp Cliffs of remote Edel Land are the most westerly land of the Australian continent. Behind them are high dunes, some of which are unstable and on the move. This is a striking wilderness. In spite of its aridity, this bleak land is the only habitat of an amazing frog, *Arenophryne rotunda*, which spends most of its life buried in the hot sand and emerges to perform its biological functions only on the rare occasions when it rains. But perhaps the aridity is not as extreme here as one might

suppose. Rainfall is scant, but there is frequently a sea mist along this coast. There is much to learn about the biology of the strange frog and other creatures which inhabit this seemingly inhospitable but wildly beautiful coastline.

It may seem strange that such a bleak arid land can support such an array of plants and animals, but there is no doubting the high nature conservation values of Shark Bay's red dunes. Not so strange is the immensely rich marine flora and fauna of the bay itself.

Shark Bay is the largest enclosed marine embayment in Australia.

Its vast expanses of shallow water are split into narrow inlets in the south by long, finger-like peninsulas and prongs. These warm, shallow and sheltered waters are highly productive in biological terms. Sea-grasses cover almost 4 000 square kilometres of the seabed and provide food and shelter for diverse and distinctive marine fauna. Photosynthetic activity of the sea-grasses in the warm sunlit shallows generates a high level of nutrients. Also, a high rate of deposition of carbonate sediments provides a substrate very conducive to the burrowing lifestyles of invertebrate animals. Extensive

Dorre Island (left) is a nature reserve providing refuge for five kinds of native mammal, several of which are now extinct on the mainland of Australia (see pics. on next page).

In Shark Bay there is a secure population of dugong, a strange marine mammal which has been hunted to extinction in many other areas (right).

Steep Point is a popular site for rock-fishing (below right).

Banksia ashbyi, a common species from Kalbarri to Shark Bay and northwards along the coast, with a Spiny-cheeked Honeyeater, one of the banksias main pollinators (below).

The Shark Bay Volute (*Cymbiolacea nivosa*), an endemic west coast mollusc, is a common predator on the intertidal sand-flats of Shark Bay (bottom).



P. Anderson



S. Hopper



B. Williams



N. Wehleck/Lochman Transparencies

intertidal sand-flats are a particular feature of Shark Bay shorelines, and these support an unusually rich fauna of burrowing bivalves and other molluscs.

With this high biological productivity it is no surprise that the sea-grass beds and shallow inlets of Shark Bay serve as nursery areas for many fish and crustaceans and, ultimately, support major scale-fish and shell-fish industries. Netting for whiting, mullet, bream and other scale fish, hooking and potting for snapper, and trawling for prawns and scallops provide significant employment and revenue for the region.

It is the same nutrient-richness, high productivity, and wide areas of shallows which produce and support the recreational fishery which is such an important resource for the developing tourist industry of Shark Bay.

Clearly, the shallow nursery areas and the productive sea-grass banks require careful protection.

One very special feature of the Shark Bay marine fauna is a large population (estimated to be about 1 000 animals) of dugong (*Dugong dugong*), probably the strangest of all marine mammals. These quiet, bottom-feeding 'sea cows' have been hunted to extinction in most parts of their tropical Indo-Pacific range, but here in Shark Bay there is a large and apparently healthy family of them. In summer they concentrate on the shallow sea-grass banks along the eastern mainland shore; in winter they migrate to warmer outer areas of the bay. They are not hunted any more in Shark Bay, but there is risk that they may be disturbed by fast power boats as recreational boating increases in the area. The Region Plan proposes declaration of marine reserves to protect the sum-

mer and winter feeding habitats of the dugong, and it may be necessary to control boating activities in some areas to prevent disturbance to these gentle creatures.

Certain beaches of Shark Bay are the most southerly nesting areas of the Green Turtle (*Chelonia mydas*) and Loggerhead Turtle (*Caretta caretta*). Like the dugong, these marine vertebrates have been hunted almost to extinction except in northern Australia. Australian wildlife management authorities have a special responsibility to protect their breeding and feeding areas.

Of course, the Monkey Mia dolphins are well known to everyone. What is not so well known is that the dozen or so individuals who turn up so regularly to charm people into giving them free meals are members of a large pod of a hundred or more dolphins which



A. G. Wells



B. Wilson

The Banded Hare-Wallaby (*Lagostrophus fasciatus*) (far left) and the Western Barred Bandicoot (*Perameles bougainville*) (above left). These two marsupials survive now only on Bernier and Dorre Islands.

Low tide in Hamelin Pool exposes stromatolites. These living structures represent a life-form which flourished when life on earth began (left).

inhabit the eastern part of Shark Bay. Why these individuals seek human company is a mystery. Are they the brave, curious or lazy members of their society?

Current studies on the sociology of the pod are revealing many details about the complexities of dolphin life which were hitherto undreamed of. Protecting the phenomenon of the dolphin-human interaction at Monkey Mia is a special objective of the Shark Bay Region Plan. But that depends upon the protection of the social structure, habitat and home range of the entire pod.

Another internationally renowned feature of the Shark Bay marine environment is the occurrence of stromatolites in Hamelin Pool. These peculiar calcareous structures are formed by growth of certain micro-algae and bacteria. Their growth is dependent upon very unusual combinations of environmental conditions in the hyper-saline shallows of Hamelin Pool. It is believed that the same kind of structures, formed by the same biological processes, were characteristic of our world's shallow seas when life on earth began. Hamelin Pool has much to tell us about the early history of our planet. No one would question that the stromatolites must be protected, but it is necessary also to protect the marine environment in which they grow. In particular, maintenance of the sea-grass banks and the Faure Sill at the northern end of Hamelin Pool is essential to maintenance of the stromatolite environment. The Region Plan proposes that the whole of Hamelin Pool and adjacent foreshore lands be protected by reservation and management as a nature reserve.

Thus, for a variety of reasons, the marine environment of Shark Bay has very special features worthy of protection and careful management, especially the inlets and sea-

grass banks which support the important commercial and recreational fisheries. There is particular responsibility for protection of stromatolites, dolphins, dugong and turtles and their habitats, but the entire marine fauna and supporting habitats of Shark Bay are unique, and there are strong reasons for the Region Plan proposals for marine parks and reserves.

There is much scope in Shark Bay for development of out-of-doors recreational facilities. At present, access is lacking, or at best difficult, to many points of interest.

There are many quiet, scenic bays and inlets which cannot be reached except by boat, and boat-launching facilities are rare. Declaration and development of the proposed national parks on Peron Peninsula and at Steep Point and the construction of access roads will greatly enhance public recreational opportunities in the region. Development of observation facilities at places of special interest, for example at the best stromatolite localities and at Monkey Mia, together with provision of natural history and human history information, will greatly enhance public enjoyment and interest.

Fishing for snapper off Peron Peninsula in the quiet of an evening.



One of the attractive features of Shark Bay is its remoteness, however, and the sense of wilderness which it offers. Care must be taken to preserve that atmosphere.

Thus, Shark Bay is a large area of land and sea containing an exceptional number of outstanding natural heritage values set in a matrix of unique scenery and wilderness. Each special feature must be managed and protected not only in its own right, but in the context of the Shark Bay environment as a whole. The Region Plan strategy is to protect special features in reserves but at the same time to provide a means of overall, integrated management which will protect the integrity of the whole.

A plan is merely a framework which provides guidelines for action. Implementation is the next step and, in the case of the Shark Bay Region Plan, this will require time, attention to detail, and a great deal more interaction between management authorities, the regional community, and the public at large.

There is no doubt that Shark Bay is a special place worthy of special attention. Our tasks are to protect, manage and care for all those outstanding natural features which give it its special character, while enhancing its values as a human environment.

The Unforeseen

The best laid plans of mice and managers cannot always cover all eventualities. Cyclone Herbie made its presence felt at dawn on May 21st 1988. A little reminder that nature still rules supreme on the Peron Peninsula. Photographer Jiri Lochman had the (mis)fortune to be there at the time.



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Editor: Liana Christensen
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EDITORIAL

Anybody who reads tourist brochures in this State will appreciate that the tourist industry is, to a large extent, dependent on natural features and wildlife for its 'product'. Many people who are concerned with the natural environment are antagonistic to tourism, and it is certainly true that in the past there have been some insensitive tourist developments in the State. But, just as the farming community over the past ten years has become one of the greatest allies of conservation, so, increasingly, is the tourist industry. For example, in a recently published tourist industry report on tourism in the Kimberley, the need to preserve this environment was given top priority.

This report is indicative of the growing awareness in that industry of the symbiotic relationship between tourism and the protection and maintenance of our unique flora, fauna and landscapes. Rather than being despoilers, the tourist industry has the potential to become one of the strongest advocates for conservation in the broadest sense.

There is a great potential for synergism between those interested in the science of conservation and the tourist industry. One of the ways by which the tourist potential of any natural area can be enhanced without any cost to the environment is by providing information to the visitors on the natural science that makes that area special.

Landscape is one avenue by which we are attempting to provide an added dimension to the 'look it's lovely' tourist experience. Interestingly, while *Landscape* receives almost universal acclaim from the general public, there is ongoing, often vigorous, internal debate about how technical we should make the magazine. We would appreciate your views.



Shark Bay, p.8



Carving the Future, p.33



Garden Escapes, p.44

Cover Photo

'Now, just how do I find my way out of this Renoir landscape?'
Photographer **Richard Woldendorp**
captured this lizard taking a sighting.