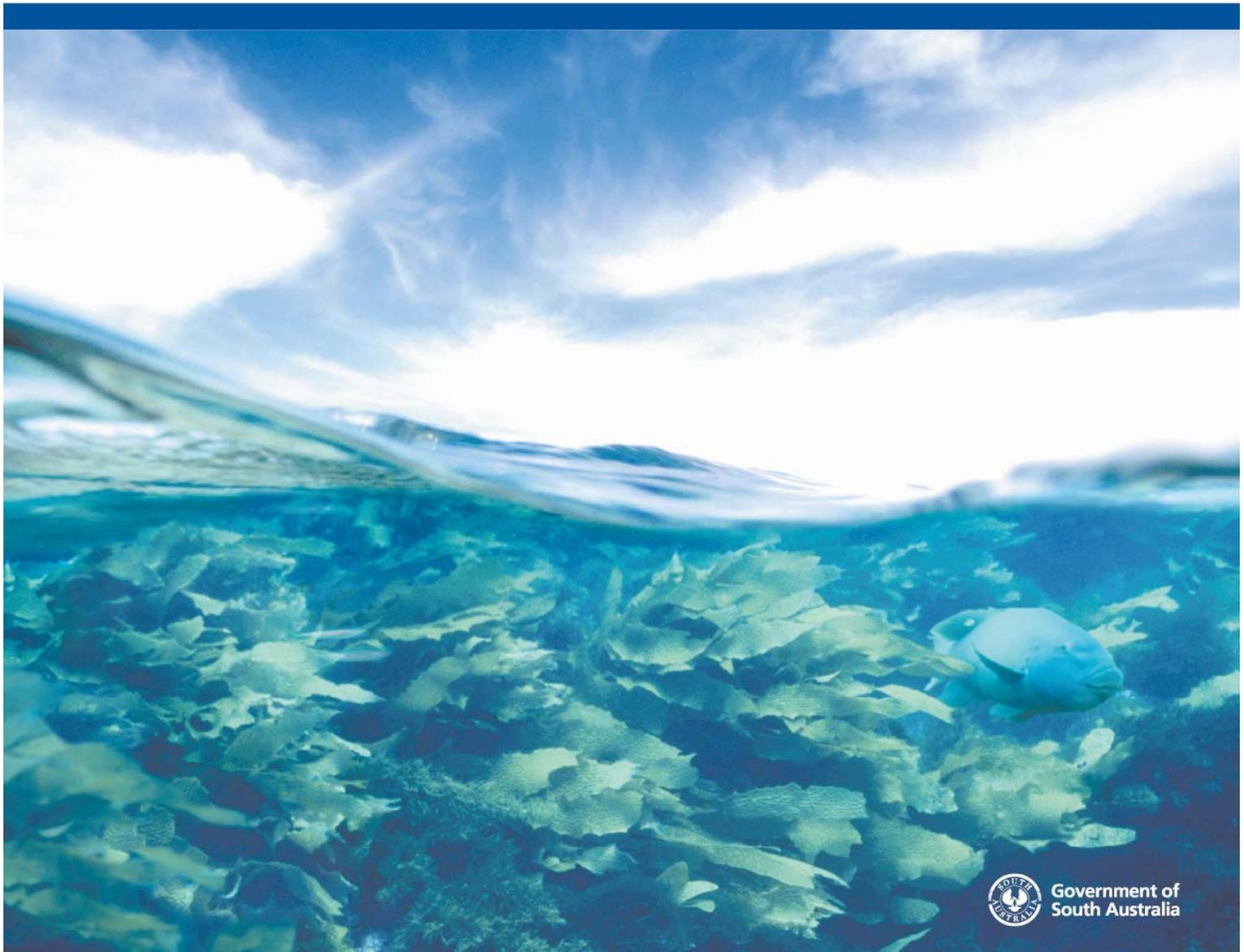

Marine Parks

Reserve today. Preserve forever.

Environmental, Economic and Social Values of the Far West Coast Marine Park

PART 1



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Cite as:

Department of Environment and Natural Resources (2010), *Environmental, Economic and Social Values of the Far West Coast Marine Park*, Department of Environment and Natural Resources, South Australia

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PART 2 AN ATLAS OF MAPS

An atlas of maps containing environmental, economic and social/cultural information for this marine park has been produced as Part 2 of the Values Statement. The maps provide details specific to this park in a user-friendly visual format and may be viewed and downloaded from <http://www.marineparks.sa.gov.au>.

Far West Coast Marine Park

Situated between the Western Australian border and the Tchalngaby sandhills, the Far West Coast Marine Park covers 1,690km² and is located within the Eucla Bioregion. This park encompasses the Great Australian Bight Marine Park and partially overlays the Nullarbor National Park and Wahgunyah Conservation Park up to median high water.

1 ENVIRONMENTAL VALUES

1.1 *Ecosystem services*

Ecosystems provide many critically important services that people benefit from, often at no direct cost to us. Examples of ecosystem services provided by coastal and marine habitats are shown in the following table. It is important to ensure that ecosystem health and integrity are maintained so that ecosystems continue to provide these services to us all.

Table adapted from McLeod, K and Leslie, H (2009).

	Life supporting services				Resources and products				Maintain earth's living space						Recreational and cultural services					
	Biogeochemical processes	Biophysical processes	Biodiversity	Nutrient cycling	Food	Fibre, fuel, shells etc	Non-biological materials (eg minerals)	Pharmaceuticals & nutraceuticals	Climate regulation	Waste processing	Flood/storm protection	Water flow/circulation	Erosion control	Water quality	Sediment quality	Cultural and amenity	Recreation and tourism	Aesthetics	Spiritual, religious, lifestyle	Education and research
Coastal, estuarine and marine habitat types																				
Bare Sand	x	x	x	x	x	x	x			x		x		x	x	x	x	x	x	x
Reef (granite, limestone, calcarenite or low profile platform reef)	x	x	x	x	x	x	x	x	x	x		x	x	x		x	x	x	x	x
Water column	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x
Cliffs	x	x	x	x	x	x	x				x					x	x	x	x	x
Sandy beaches (dunes, coarse sand, fine sand)	x	x	x	x	x	x	x								x	x	x	x	x	x

The Far West Coast Marine Park will be designed to conserve examples of the variety of habitats and species found in the Eucla Bioregion. Habitats, species and natural processes found here are summarised below.

1.2 Physical influences

Physical influences shape the type of habitats and species found in an area. Physical influences typical of this region include:

- sea surface temperatures ranging from 19–22°C in summer to 13–16°C in winter;
- the warmer Leeuwin Current¹;
- some of the highest wind and wave energies in the state.

1.3 Habitat variety

Table 1 Benthic (subtidal) habitats of the Far West Coast Marine Park

Benthic Habitat**	Area (km ²) [*]	% of park
Bare sand	387	23%
Heavy limestone reef	6	0%
Low profile platform reef	41	2%
Unmapped	1255	74%

* habitat areas have been rounded to the nearest whole number

**habitats included are those found from mapping at a resolution of 1:100,000

Table 2 Shoreline (intertidal) habitats of the Far West Coast Marine Park

Shoreline Habitat	Length in park (km) [*]	% of park length
Cliffs	213	66%
Coarse sandy beach	16	5%
Fine sandy beach	95	29%

* habitat lengths have been rounded to the nearest whole number

The region features limestone cliffs, up to 90m high in some places, interspersed by rocky headlands, narrow intertidal rock platforms, reefs and beaches backed by dune barriers.

The extensive shallow continental shelf is a key feature of the Great Australian Bight. Much of the seafloor habitat has not been mapped, but most of the mapped area contains sandy plains, with patches of reef in both shallow and deeper waters. The high-energy reefs and wave-cut shore platforms along the coastline are dominated by species of large brown algae and smaller red coralline algae. These habitats reflect the combined oceanographic conditions of exposure to strong south-westerly swell, high waves and low-nutrient warm water.

1.4 Marine species

The many habitats located within the Far West Coast Marine Park support a variety of marine and coastal species including fish, sharks, mammals, birds and invertebrates, some of which have been identified as ecologically important. Refer to Appendix 1 for a more detailed list of species. The Far West Coast Marine Park features:

- one of the most important breeding sites for southern right whales in the world; and
- an aggregation area for female school sharks.

1.4.1 Plants and algae

Many hundreds of algal species are found on reefs in this region. Some species of large brown algae thought to be of tropical origin have also been found in the Great Australian Bight (GAB). Sparsely distributed seagrasses can be found in some of the lagoons.

¹ The Leeuwin Current originates in the tropical Indian Ocean, flows south along the Western Australian coast, and turns east along the shelf break to the Great Australian Bight, bringing warm, relatively low nutrient waters (Middleton & Bye 2007).

1.4.2 *Bony fish, sharks and rays*

The warm-water intrusion of the Leeuwin Current brings a number of tropical species to the GAB, resulting in diverse fish populations. The current has strongly influenced the evolution of many fish and affects characteristics such as spawning, migration, breeding and feeding patterns. A few species in the waters of the Bight are locally endemic within South Australia, such as coastal stingaree and the protected crested threefin, robust pipehorse and shaggy pipefish.

The strength, timing and seasonality of the Leeuwin Current has a major influence on several commercially important fish species such as Australian salmon, Australian herring, blue mackerel and jack mackerel. Migratory visitors such as southern bluefin tuna also travel through the region.

The nationally *vulnerable* white shark is found in the GAB and western Eyre Peninsula region, probably due to the availability of prey species, such as seals and sea lions.

Other sharks of conservation concern found in the region include whitespotted spurdog, spotted wobblygong, blue shark, dusky whaler, bronze whaler, smooth hammerhead and school shark as well the shortfin mako and porbeagle which were recently listed for protection under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). The dusky whaler has been nominated for listing under the EPBC Act. The Head of the Bight/Eyre Bluff area to the Western Australia border is considered to be significant for pregnant female school sharks, which aggregate there before migrating to pupping areas in Tasmania.

1.4.3 *Marine mammals*

The nursery area at the Head of Bight is one of the most important southern right whale breeding areas in the world. The Far West Coast Marine Park represents a major contribution to the worldwide recovery of the nationally *endangered* and state *vulnerable* southern right whale population.

The Far West Coast Marine Park includes 11 breeding sites and 14 haul-out sites for the nationally and state listed *vulnerable* Australian sea lion. Haul-out sites for the New Zealand fur seal are also located at several sites within the marine park.

1.4.4 *Seabirds and local and migratory shorebirds*

About 1.3 million pairs of short-tailed shearwaters and white-faced storm petrels breed in the park. Other important species include the nationally protected little penguin, which is endemic to Australia and New Zealand and the state *endangered* osprey and white-bellied sea eagle, which nest on rock stacks or cliffs.

1.4.5 *Marine invertebrates*

Several species of sea snails have been recorded only in the GAB. A species of basket star, several sea cucumbers and various other species which are of tropical or Indo-Pacific origin are found on intertidal and subtidal reefs in the area.

For further environmental and social information refer to <http://www.marineparks.sa.gov.au>

2 ECONOMIC VALUES

The marine environment is an important source of wealth for South Australia and its coastal communities. Marine parks will be designed to accommodate existing economic activities wherever possible. The main economic activities in the Far West Coast Marine Park are summarised below. Information in the Commercial Fishing section has been provided by PIRSA.

2.1 *Commercial fishing*

The commercial fisheries that operate in the Far West Coast Marine Park are:

- Western Zone Abalone Fishery;

- Northern Zone Rock Lobster Fishery; and
- Marine Scalefish and Shark Fishery.

The value of each of these fisheries, including the direct and flow-on values, as well as the number of employees and export values, where available, are listed below. Note that the values provided below are for the entire area of the fishery and are not specific to the Far West Coast Marine Park.

Table 3 The 2008/09 economic value of fisheries operating in the marine park for relevant fishery areas (figures are not specific to the park area and include catches from outside the marine park boundary).

	Catch value(\$m)	Value of flow-on to other sectors (\$m)	Fishing (FTE) employment	Flow-on (FTE) employment
Abalone (Eyre)	30	20.3	90	102
Abalone (Western Zone)	19.6			
Northern Zone Rock Lobster(Eyre)	19.3	14.5	155	77
Marine Scalefish (West Coast Region)	3.2	2.4	40	13

EconSearch 2010 a, b and c.

These fisheries are important to regional economies of the area both directly, through employment in each fishery, and indirectly, through a range of additional services such as processing, local transport, marketing, local retail and food services. Each of these activities generates flow-on effects to other sectors, through purchases of inputs and employment of labour.

The Northern Zone Rock Lobster fishery is mostly restricted to the eastern Bight, where islands and interconnected reefs provide suitable lobster habitat. Catch from within the park is low and not summarised in stock assessment reports due to its insignificant contribution to the northern zone catch.

The coastal waters of the park form part of the Western Zone Abalone Fishery. Catch in this area is comparatively low, forming less than 20% of the catch from Region B of the western zone. Region B ranges from the Western Australian border to Point Brown near Smoky Bay.

The Marine Scalefish Fishery is a diverse multi-species, multi-gear fishery that operates across State waters. Within the Great Australian Bight fishers target a diverse range of marine fish species, molluscs, crustaceans, squid, sharks and rays. In inshore waters of the Bight, the main focus is on snapper, King George whiting and Western Australian salmon, while in deeper waters the focus is on leatherjacket. Other species caught include mullet, southern garfish, school shark, gummy shark, bronze whaler shark and others.

For further information visit:

http://www.sardi.sa.gov.au/_data/assets/pdf_file/0010/99739/No_305_South_Australian_Wild_Fisheries_Information_and_Stats_report_200708_published.pdf

2.2 Transport and infrastructure

Transport and infrastructure provide an important economic contribution to the region, providing for maritime activities such as: shipping ports for import and export of goods; boat ramps for launching of recreational or commercial vessels; jetties for fishing; and breakwaters and groynes for coastal management.

2.3 Local tourism

Tourism is an important economic contributor to the region. The coastal environment, fishing and especially whale watching at the Head of the Bight are important drawcards for visitors.

Whale watching facilities at the Head of Bight include an interpretation centre, picnic area, boardwalk and viewing platform. Whale watching attracts an estimated 20,000 people to the

area every year. During the whale watching season, scenic flights over the area can be taken from Nullarbor Roadhouse.

3 SOCIAL VALUES

The marine environment is an important recreational and cultural asset for coastal communities. Marine parks will be designed to accommodate existing activities wherever possible. This section highlights the social values of the Far West Coast Marine Park and is separated into four parts:

- Aboriginal and European cultural heritage;
- scenic values;
- recreational activities and popular locations; and
- interpretive and educational opportunities.

3.1 Aboriginal heritage

Aboriginal people have interacted with the marine environment for thousands of years and their relationships with the sea remain strong through customs, laws and traditions. Traditional usage, Aboriginal cultural heritage, Indigenous Protected Areas (IPAs), Indigenous Land Use Agreements (ILUAs) and Native Title considerations will be taken into account in developing the management plan for the Far West Coast Marine Park.

3.1.1 Language Groups

The Mirning, Wirangu and Yalata Anangu Aboriginal people have traditional associations with areas of the marine park including estuarine and coastal environments which provide food and resources for local Aboriginal people and still hold strong cultural significance today.

3.1.2 Agreements and Claims

A group of overlapping Native Title claimants have combined to form one claim known as the Far West Coast Native Title claim. This claim currently contains parts of the Far West Coast Marine Park.

3.1.3 Protected Areas

The Yalata Indigenous Protected Area (IPA) lies at the edge of the Far West Coast Marine Park and protects large areas of uncleared native vegetation, including one of the largest stands of mallee in the country. Leased and managed by the Yalata Community and owned by the South Australian Aboriginal Lands Trust, the Yalata IPA helps protect and manage important breeding areas for many marine and coastal species.

The Government is aware that there may be confidential Aboriginal heritage sites in South Australia's coastal areas. Where possible, these sites have been considered in the planning process. Future management plans will ensure these heritage sites are appropriately respected.

3.2 European heritage

Where possible, the management plan for the Far West Coast Marine Park will recognise and complement sites of cultural and maritime heritage.

The nature of the coastline of this marine park – the cliffs of the Great Australian Bight and the exposed beaches and dunes – means that almost no evidence of European settlement and heritage exists here. Even inland, the vast expanse of the Nullarbor Plain was only ever occupied by a very few pastoral settlements, such as Nullarbor, Yalata and Koonalda, and no townships or larger settlements were ever established.

The Dutch explorer Pieter Nuyts may have sighted the cliffs of the Bight when travelling eastwards in 1627. Matthew Flinders later charted this part of coast in January 1802, describing the cliffs of the Bight in some detail.

Very few shipwrecks are found in this area, as there were no reasons for vessels to venture close to the shore. An unknown timber vessel which was lost near the Head of the Bight in c. 1841 has not been located but is protected and more recently the *Karina G*, a steel fishing vessel was washed ashore after dragging anchor in a storm in January 1990. This wreck is not protected.

The Great Australian Bight Marine Park (State and Commonwealth waters) are an indicative place on the Register of the National Estate.

3.3 Scenic values

The scenic quality of South Australia's coast is a significant social, economic and environmental resource. The coastline has high amenity value and includes high quality landscapes, also known as viewsapes. The significance or quality of viewsapes is derived from a combination of landform (relative relief, variety and complexity of landscapes), land cover (nature, scale and variety of vegetation), land use (impact of human activity), water, diversity, naturalism and colour.

The remote and spectacular coastline of the Far West Coast Marine Park has high scenic values, with high contrast between high sheer (100m) cliffs and long stretches of dunes and beaches (Lothian 2005). The Nullarbor Cliffs are among the highest ranked areas of coastal scenic quality in the State.

Scenic values of coastline in the Far West Coast Marine Park (Lothian 2005).

Rating	Coastal landform type	Ranking
7.5 – 8.0	High cliffs	High
7.0 – 7.5	Headlands and Bays	High
6.75 – 7.25	Dunes	Moderate - High

For further information on coastal scenic values and viewsapes refer to <http://www.environment.sa.gov.au/coasts/management/coastal-viewsapes.html>

3.4 Recreational activities in the marine park

Due to the remoteness and difficulty in accessing much of this park, there are limited recreational activities undertaken here. Those activities that are known to occur in this marine park are listed below.

3.4.1 Recreational beach fishing locations

Recreational fishing is a popular pastime in South Australia. Recreational fishers collectively harvest significant proportions of the total catch for a number of key species. The total number of recreational fishers for the far west coast (region 1) during 07/08 was 1,128 which amounted to 5,223 days of fishing. (Note figures relate to regions used for reporting fishing activities and may include catches from outside the marine park boundary). King George whiting, southern garfish, southern calamari and blue swimmer crab were the most frequently caught species for this region.

Recreational beach fishing is popular at Dog Fence Beach and at the seven campsites within the Yalata Indigenous Protected Area where mulloway can be caught from October to March.

3.4.2 Other recreational activities in the park

The Nullarbor caravan park provides accommodation for visitors to the Great Australian Bight Marine Park.

3.5 Interpretive and educational locations within the marine park

Whale watching facilities at the Head of Bight include an interpretation centre, boardwalk and viewing platform.

APPENDIX 1 SPECIES LIST

This list of some of the species identified in the Far West Coast Marine Park indicates the diversity of species found there.

Plants and algae

coralline algae	Corallinaceae
large brown algae	<i>Caulocystis</i> spp

Bony fish, sharks and rays

Australian herring	<i>Arripis georgianus</i>
Australian salmon	<i>Arripis truttaceus</i>
blue mackerel	<i>Scomber australasicus</i>
blue shark	<i>Prionace glauca</i>
bronze whaler	<i>Carcharhinus brachyurus</i>
coastal stingaree	<i>Urolophus orarius</i>
crested pipefish	<i>Histiogamphelus cristatus</i>
crested threefin	<i>Norfolkia cristata</i>
dusky whaler	<i>Carcharhinus obscurus</i>
garfish	<i>Hyporhamphus melanochir</i>
gummy shark	<i>Mustelus antarcticus</i>
jack mackerel	<i>Trachurus declivis</i>
King George whiting	<i>Sillaginodes punctata</i>
leatherjacket	Monacanthidae
mulloway	<i>Argyrosomus japonicus</i>
porbeagle	<i>Lamna nasus</i>
robust pipehorse	<i>Solegnathus robustus</i>
school shark	<i>Galeorhinus galeus</i>
shaggy pipefish	<i>Hypselognathus horridus</i>
shortfin mako	<i>Isurus oxyrinchus</i>
smooth hammerhead	<i>Sphyrna zygaena</i>
snapper	<i>Pagrus auratus</i>
southern bluefin tuna	<i>Thunnus maccoyi</i>
southern garfish	<i>Hyporhamphus melanochir</i>
spotted wobblygong	<i>Orectolobus maculatus</i>
Western Australian salmon	<i>Arripis truttaceus</i>
white shark	<i>Carcharodon carcharias</i>
whitespotted spurdog	<i>Squalus acanthias</i>

Marine mammals

Australian sea lion	<i>Neophoca cinerea</i>
New Zealand fur seal	<i>Arctocephalus forsteri</i>
southern right whale	<i>Eubalaena australis</i>

Seabirds and local migratory shorebirds

crested tern	<i>Sterna bergii</i>
little penguin	<i>Eudyptula minor</i>
osprey	<i>Pandion haliaetus</i>
short-tailed shearwater	<i>Puffinus tenuirostris</i>
white-bellied sea eagle	<i>Fregetta grallaria grallaria</i>
white-faced storm petrel	<i>Pelagodroma marina</i>

Marine invertebrates

basket star	<i>Gorgonocephalidae</i>
sea cucumbers	Holothurian
sea snails	Gastropoda
southern calamari	<i>Sepioteuthis australis</i>

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