
Marine Parks

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Environmental, Economic and Social Values
of the Southern Kangaroo Island Marine Park

PART 1



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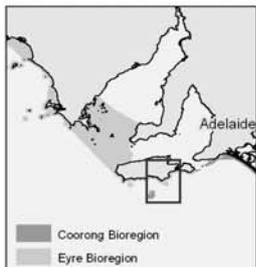
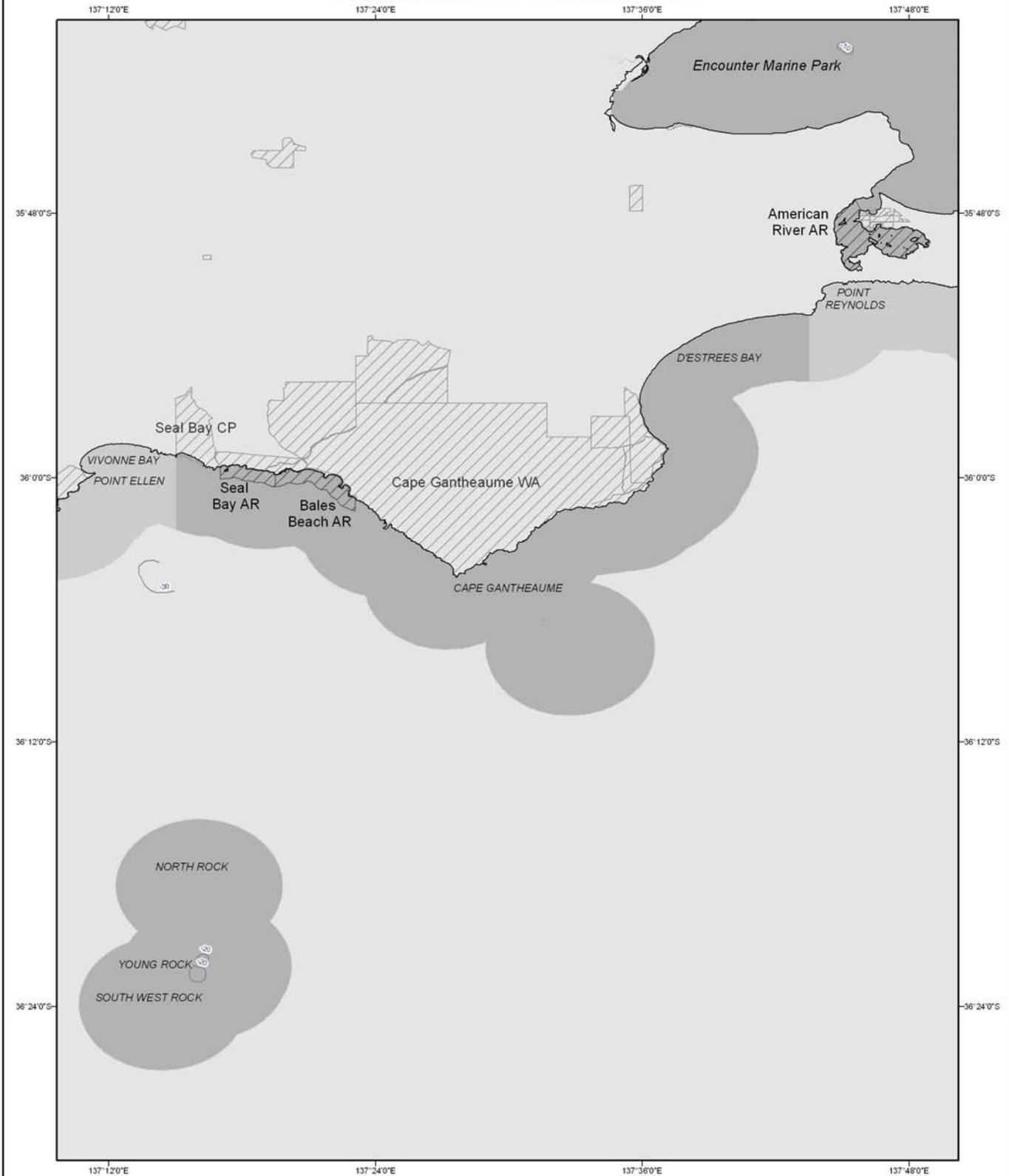
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PART 2 AN ATLAS OF MAPS

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>.

Southern Kangaroo Island Marine Park



- Marine Park
- State Waters Jurisdiction
- Parks and Reserves
- Aquatic Reserves
- Bathymetry Contours
- Roads
- Coastline (median high water)



Produced by Coast and Marine Conservation
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www.marineparks.sa.gov.au

Data Source Marine Parks, NPWSA,
 Bathymetry, Topographic Data - DEH
 Aquatic Reserves - PIRSA, Marine Bioregions - SARDI
 State Waters Jurisdiction - Geoscience Australia

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DEH MapID: 2010-3323

Southern Kangaroo Island Marine Park

Covering 673 km² and including parts of the Eyre and Coorong Bioregions, the Southern Kangaroo Island Marine Park abuts the southern coast of Kangaroo Island between D'Estrees Bay and the western end of Seal Bay Conservation Park. It also includes North Rock, Young Rock and South West Rock. The marine park also overlays Seal Bay-Bales Beach Aquatic Reserve, partially overlays the Seal Bay Conservation Park and borders the Cape Gantheaume Wilderness Protection Area.

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	x
Seagrass	x	x	x	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	x
Water column	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x
Bedrock platform	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	x
Sandy beaches (dunes, coarse sand, fine sand)	x	x	x	x	x	x	x		x		x			x	x	x	x	x	x	x
Other beaches (boulder, pebble/cobble, mixed)	x	x	x	x	x	x	x		x		x	x		x	x	x	x	x	x	x

The Southern Kangaroo Island Marine Park will be designed to conserve examples of habitats and species found in the Eyre and Coorong Bioregions. 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 southern Kangaroo Island include:

- sea surface temperatures ranging from 18–20°C in summer and 14–16°C in winter;
- the Flinders Current¹ from the south-east;
- full exposure to strong winds and wave/swell conditions in the Southern Ocean.

1.3 Habitat variety

Table 1 Benthic (subtidal) habitats found in the Southern Kangaroo Island Marine Park

Benthic Habitat**	Area (km ²)*	% of park
Bare sand	38	6%
Dense seagrass	13	2%
Heavy limestone reef	11	2%
Low profile platform reef	130	19%
Unmapped	481	71%

* 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 found in the Southern Kangaroo Island Marine Park

Shoreline Habitat	Length in park (km)*	% of park length
Bedrock platform	35	48%
Cliffs	5	6%
Coarse sandy beach	5	7%
Fine sandy beach	28	38%
Mixed beach	1	1%

* habitat lengths have been rounded to the nearest whole number

Habitats of Southern Kangaroo Island Marine Park include high energy sandy beaches, exposed cliffs, rocky headlands and rocky shores around Cape Gantheaume. Wave-cut shore platforms, fringing reefs, and deep reefs interspersed by sandy seafloors can be found at the base of the cliffs and headlands. There are also dune systems along Cape Gantheaume, Seal Bay and Bales Beach. Adjacent to the long sandy beach and dunes of D'Estrees Bay, the slightly more sheltered waters support some of the largest seagrass beds on the south coast of Kangaroo Island.

South-west of Cape Gantheaume lies the small group of unique offshore algae-covered granite knolls named North Rock, South-west Rock and Young Rock. Sea floor features like this are ecologically important due their differences in structure, habitat and depth, compared to the surrounding waters. Blacklip abalone is known to thrive on the knolls.

1.4 Marine species

The many habitats located within the Southern Kangaroo Island Marine Park support a variety of marine and coastal species, some of which have been identified as ecologically important. Refer to Appendix 1 for a more detailed list of species. The Southern Kangaroo Island Marine Park features:

- haul out sites for the *rare* Australian fur seal on North, Young and South West Rocks and at Cape Gantheaume;
- the nationally *vulnerable* white shark and the conservation dependent school shark;

¹ The Flinders Current is a deep south-east to west current which is thought to flow from the west Tasmanian shelf to Cape Leeuwin and increases in flow speed from south-east (5cm / second) to west (20cm / second). (Middleton & Bye 2007).

- nesting habitat for the hooded plover, osprey and white-bellied sea eagle; and
- breeding site for the nationally and state listed *vulnerable* Australian sea lion.

1.4.1 *Plants and algae*

Parts of the south coast of Kangaroo Island support dense cover of macroalgae, including regionally unusual assemblages. The heavy granite boulders are commonly dominated by large brown furoid algae such as *Scytothalia*, *Seirococcus*, *Acrocarpia* and *Cystophora* species. The limestone reefs tend to be dominated by *Caulerpa* species as well as *Sargassum* species, *Cystophora* species or large mixed red algal communities.

The *Posidonia* seagrass meadows at D'Estrees Bay represent the only significant habitats of this type on the south coast of Kangaroo Island, included within the park.

1.4.2 *Bony fish, sharks and rays*

Fish species of conservation concern such as the western blue devil and western blue groper can be found at a variety of reefs in the region. Other reef species that inhabit these waters include magpie perch, zebra fish, long-finned pike, senator wrasse, blue-throated wrasse, sweep, Victorian scalyfin and horseshoe leatherjacket.

The habitats located throughout this marine park support many commercial and recreational fish species at different stages in their life cycle. Seagrass meadows and sandy seafloor habitats located in D'Estrees Bay are used by King George whiting, Western Australian salmon, Australian herring, trevally and southern garfish. The surf beaches such as Bales Beach, Seal Bay and Cape Gantheaume are used by species such as school whiting, yellow-eye mullet, flathead and Western Australian salmon. Many of the reefs located throughout the park are also known to support a range of transient and resident fish species such as snapper and King George whiting, and western blue groper and harlequin fish respectively.

The nationally *vulnerable* white shark and the school shark (identified as conservation dependent) have been recorded at some locations in the park. The porbeagle and shortfin mako visit locations throughout the park and 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. Other shark or ray species of conservation concern recorded in the area include coastal stingaree, whitespotted spurdog, spotted wobblygong, blue shark and smooth hammerhead.

1.4.3 *Marine mammals*

The protected headlands, dunes and beaches of Seal Bay support an important breeding colony of the nationally and state listed *vulnerable* Australian sea lion. The sea lions also forage in offshore habitats.

Haul out sites for the state *rare* Australian fur seal are located on North, Young and South West Rocks and Cape Gantheaume.

Haul-out sites for the New Zealand fur seal are located at Pelorus Islet, while breeding and/or haul-out sites are located along the coastline of the park. Cape Gantheaume hosts the largest breeding colony outside of the Neptune Islands.

1.4.4 *Seabirds and local and migratory shorebirds*

The park hosts migratory seabirds which are protected under international treaties, such as the Caspian tern found at D'Estrees Bay and the short-tailed shearwater recorded at Cape Gantheaume. Breeding populations of the white-faced storm petrel are known to use Nobby Island, while North, Young and South West Rocks provide nesting sites for other seabirds. Ospreys and Sea eagles have been recorded in the area.

Beaches, such as those at Seal Bay and D'Estrees Bay, provide nesting habitat for the state *vulnerable* hooded plover. Kangaroo Island supports about one third of the South Australian population.

1.4.5 Marine invertebrates

Species such as southern rock lobster, southern calamari, Maori octopus, greenlip abalone, blacklip abalone, and purple sea urchins use the reefs and other habitats in this marine park for different life stages. A variety of sponges, ascidians and bryozoans are found on the reefs.

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 Southern Kangaroo Island Marine Park are summarised below. Information in the Commercial fishing section was provided by PIRSA.

2.1 Commercial fishing

The commercial fisheries that operate in the Southern Kangaroo Island Marine Park are:

- Central Zone Abalone Fishery;
- Northern Zone Rock Lobster Fishery;
- Marine Scalefish Fishery; and
- Miscellaneous Giant Crab 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 may not be specific to the Southern Kangaroo Island 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 (State)	30	45.2	90	225
Abalone (Central Zone)	5.7			
Northern Zone Rock Lobster	19.3	34.2	155	169
Marine Scalefish (Gulf St Vincent/ Kangaroo Island)	7.2	6.0	192	34

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 abalone fishery targets greenlip and blacklip abalone. The park lies within the Central Zone Abalone Fishery, which produced 18% of the total state harvest in 2008/09.

The park is part of the Northern Zone Rock Lobster Fishery, which operates from November to May. The northern zone contributes around 20% of the \$105m state-wide catch of southern rock lobster. Southern and western Kangaroo Island are important areas for this fishery.

The Marine Scalefish Fishery is a diverse multi-species, multi-gear fishery that operates across State waters, targeting four key species: snapper, King George whiting, southern garfish and southern calamari.

The Giant Crab Fishery is a small fishery with well established operators who fish in the area. The average catch in South Australia is 20t per year.

For further information or to view maps of the fishing regions visit:

http://www.sardi.sa.gov.au/_data/assets/pdf_file/0010/99739/No_305_South_Australian_Wild_Fishes_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

Kangaroo Island is a premier tourism drawcard with an abundance of nature-based tourism opportunities on offer, including swimming, fishing, boating, surfing, scuba diving, walking, and wildlife viewing. In 2008-09 Kangaroo Island attracted over 180,000 visitors who spent over 670,000 nights in the region, spending an estimated \$107m.

Principal visitor activities on Kangaroo Island in 2008/09 included 77% who observed and interacted with native animals and wildlife. Seal Bay is renowned for its up close view of Australian sea lions and is the fourth most popular destination for Kangaroo Island tourists with 76% (140,661) visiting the Bay in 2008/09. Going to the beach has increased in popularity over the last three years from 41% in 06/07 to 49% in 08/09. Tourists also enjoyed other marine activities such as boating/fishing (15%) and scuba diving/snorkelling (6%).

Tourism provided an important employment opportunity for Kangaroo Islanders. As a result the proportion of the Kangaroo Island population employed in tourism was significantly higher than that for other regions in the state. In June 2007 there were more than 200 tourism related businesses in the region, of which 42% were micro or small businesses.

3 SOCIAL VALUES

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

- Aboriginal and European cultural heritage;
- 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 Southern Kangaroo Island Marine Park.

3.1.1 Language Groups

The Ngarrindjeri and Kaurna Aboriginal people may have had traditional associations with Kangaroo Island, including the marine environment and associated marine life. Aboriginal aspirations for this area are not known by the Department of Environment and Natural Resources.

3.1.2 Agreements and Claims

There are currently no Native Title Claims or registered ILUAs included in the marine park.

3.1.3 Sites and Stories

Kangaroo Island is believed to contain many cultural heritage sites from when the Island was connected to the main land, as well as more recently from the early 19th century when many Aboriginal women were taken to Kangaroo Island from Kaurna, Ngarrindjeri and Tasmanian Aboriginal groups by sealers and whalers.

The Government is aware that there may be confidential Aboriginal heritage sites in South Australia's coastal areas. Where possible, these sites will be 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 Southern Kangaroo Island Marine Park will recognise and complement sites of cultural and maritime heritage.

The French explorers Nicolas Baudin and Louis Freycinet charted the coast of Kangaroo Island in 1803, naming such features as Cape Gantheaume, Cape Linois and D'Estrees Bay.

A whaling station was established at the southern end of D'Estrees Bay sometime in the early 1840s. The archaeological remains scattered along the coast north of Point Tinline are protected as part of the state heritage listed D'Estrees Bay whaling site.

In November 1853 the screw steamer *Osmanli* struck the reef off Point Tinline. It is significant as the first steamship wreck in South Australia. The *You Yangs* struck a reef somewhere near Quin Rock in 1890 and was eventually washed ashore near Cape Gantheaume. Both these wrecks are protected. The more recent wrecks of two fishing vessels, the *Sea Spray* and the *Joan Margaret*, are also located near Cape Gantheaume.

The dunes located adjacent to the marine park at Cape Gantheaume and D'Estrees Bay are recognised as geological monuments and the Cape Gantheaume and Seal Bay Conservation Parks are included in 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 coastline of the Southern Kangaroo Island Marine Park has moderate-high scenic values (Lothian 2005).

Between Seal Bay and Point Tinline lies a relatively undeveloped coastline backed by the Seal Bay and Cape Gantheaume Conservation Parks. Features of high scenic value along this coast include cliffs at Seal Bay and Cape Gantheaume, and small, dune-backed beaches at Bales Beach and Dry Creek. At D'Estrees Bay a long curved beach is backed by low vegetated dunes or low cliffs which have a moderate scenic value.

Scenic values of the offshore islands have not been assessed.

Scenic values of coastline in the Southern Kangaroo Island Marine Park (Lothian 2005).

Rating	Coastal landform type	Ranking
7.0 – 7.5	Headlands and bays	High
6.75 – 7.25	Dunes and beach	High
6.5 – 7.0	Low cliffs	Moderate

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

The coastal and marine environments of the Southern Kangaroo Island Marine Park are very popular with recreational fishers, boat users, snorkellers, scuba divers, swimmers, surfers and sightseers. Examples of these activities are listed below.

3.4.1 Recreational beach and boat fishing locations

Recreational fishing is a popular past time 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 Southern Kangaroo Island (region 21) during 07/08 was 2,796 which amounted to 4,858 days of fishing. (Note figures relate to regions used for reporting fishing activities and include catches from outside the marine park boundary). Blue swimmer crab was the most abundantly caught species followed by King George whiting, southern garfish, southern calamari and snapper for the Gulf St Vincent and Kangaroo Island region.

Recreational surf and rock fishing occurs at several locations and charter vessels provide further opportunities for recreational fishing offshore. For example, D'Estrees Bay is a popular fishing location for snapper, sweep, Australian herring and whiting. The waters surrounding North Rock, South-West Rock, Young Rock, as well as Pelorus Islet are also popular recreational fishing locations.

3.4.2 Popular surfing and swimming beaches

Popular surfing locations include the main beach of D'Estrees, adjacent to Cape Gantheaume Wilderness Area and Bales Beach.

3.4.3 Popular diving locations

Dive fishing for black and greenlip abalone, scallops or rock lobster occurs at several sites in the marine park including Pelorus Island and Cape Linios.

3.4.4 Other recreational activities in the park

Bird watching, camping and weekend getaways are popular forms of recreation within this marine park.

3.5 Interpretive and educational locations within the marine park

The visitor centre at Seal Bay has interpretive displays which include information on the history of sealing, life at sea, the evolution of seals, seal research, and marine pollution.

APPENDIX 1 SPECIES LIST

This list of some of the species identified in the Southern Kangaroo Island Marine Park indicates the diversity of species found there.

Plants and algae

brown fucoid algae Fucales

Bony fish, sharks and rays

Australian herring	<i>Arripis georgianus</i>
Australian salmon	<i>Arripis truttaceus</i>
black ray	<i>Dasyatis thetidis</i>
blue shark	<i>Prionace glauca</i>
blue-throated wrasse	<i>Notolabrus tetricus</i>
coastal stingaree	<i>Urolophus orarius</i>
dusky whaler	<i>Carcharhinus obscurus</i>
flathead	<i>Platycephalus bassensis</i>
harlequin fish	<i>Othos dentex</i>
horseshoe leatherjacket	<i>Meuschenia hippocrepis</i>
King George whiting	<i>Sillaginodes punctata</i>
long-finned pike	<i>Dinolestes lewini</i>
magpie perch	<i>Cheilodactylus rubrolabiatus</i>
porbeagle	<i>Lamna nasus</i>
school shark	<i>Galeorhinus galeus</i>
school whiting	<i>Sillago flindersi</i>
senator wrasse	<i>Pictilabrus laticlavis</i>
shortfin mako	<i>Isurus oxyrinchus</i>
smooth hammerhead	<i>Sphyrna zygaena</i>
snapper	<i>Pagrus auratus</i>
southern garfish	<i>Hyporhamphus melanochir</i>
spotted wobblygong	<i>Orectolobus maculatus</i>
sweep	<i>Scorpis aequipinnis</i>
trevally	<i>Pseudocaranx georgianus</i>
Victorian scalyfin	<i>Parma victoriae</i>
Western Australian salmon	<i>Arripis truttaceus</i>
western blue devil	<i>Paraplesiops meleagris</i>
western blue groper	<i>Achoerodus gouldii</i>
white shark	<i>Carcharodon carcharias</i>
whitespotted spurdog	<i>Squalus acanthias</i>
yellow-eye mullet	<i>Aldrichetta forsteri</i>
zebra fish	<i>Girella zebra</i>

Marine mammals

Australian fur seal	<i>Arctocephalus pusillus doriferus</i>
Australian sea lion	<i>Neophoca cinerea</i>
New Zealand fur seal	<i>Arctocephalus forsteri</i>

Seabirds and local and migratory shorebirds

Caspian tern	<i>Sterna caspia</i>
hooded plover	<i>Thinornis rubricollis</i>
white-faced storm petrel	<i>Pelagodroma marina</i>

Marine invertebrates

blacklip abalone	<i>Haliotis rubra</i>
giant crab	<i>Pseudocarcinus gigas</i>
greenlip abalone	<i>Haliotis laevigata</i>
Maori octopus	<i>Octopus maorum</i>
purple sea urchin	<i>Helicodaris erythrogramma</i>
scallop	Pectinidae
southern calamari	<i>Sepioteuthis australis</i>
southern rock lobster	<i>Jasus edwardsii</i>

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