Marine Parks

Progress summary

2012 - 2016

SOUTH AUSTRALIA

Government of South Australia

Department of Environment, Water and Natural Resources

National Parks South Australia

South Australia's Marine Parks

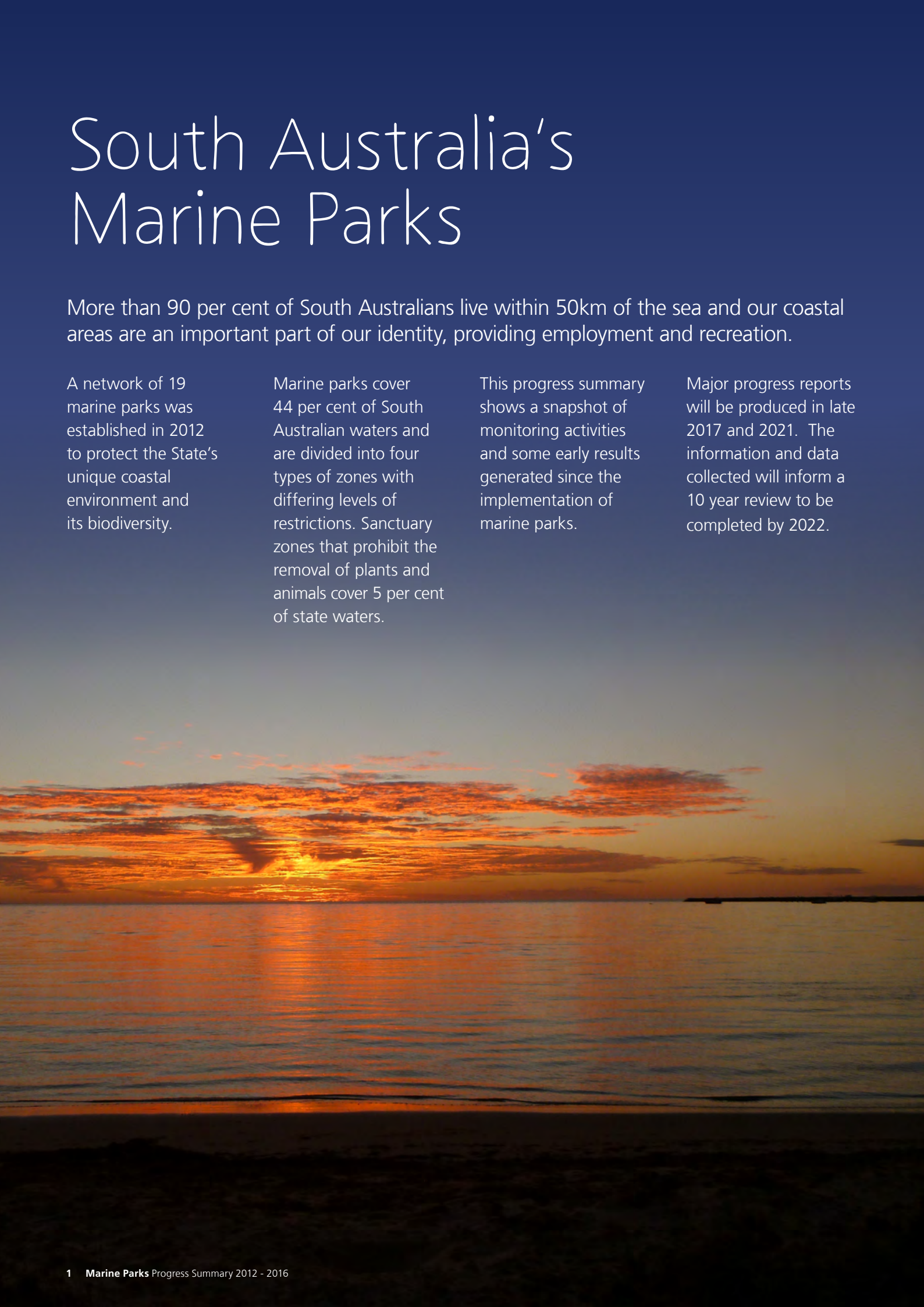
More than 90 per cent of South Australians live within 50km of the sea and our coastal areas are an important part of our identity, providing employment and recreation.

A network of 19 marine parks was established in 2012 to protect the State's unique coastal environment and its biodiversity.

Marine parks cover 44 per cent of South Australian waters and are divided into four types of zones with differing levels of restrictions. Sanctuary zones that prohibit the removal of plants and animals cover 5 per cent of state waters.

This progress summary shows a snapshot of monitoring activities and some early results generated since the implementation of marine parks.

Major progress reports will be produced in late 2017 and 2021. The information and data collected will inform a 10 year review to be completed by 2022.



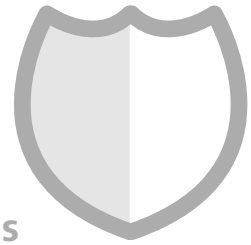
Marine park management

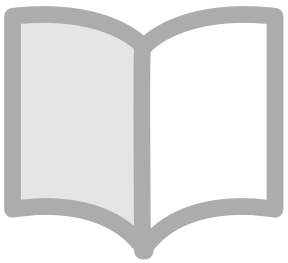
Each marine park is guided by a management plan. The strategies outlined in these plans are implemented by the following four management programs.

Protection

Protection ensures that activities in marine parks are conducted in accordance with zoning restrictions and the *Marine Parks Act 2007*.

100+
permits issued for
research, filming
tourism and competitions





5000+
visitors
engaged in
marine park
community events

Stewardship

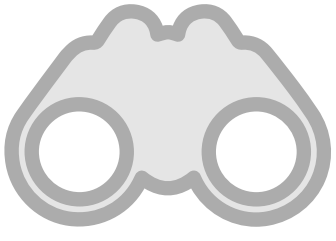
Stewardship contributes towards increasing public education and appreciation of marine parks by producing interpretation signs, brochures, mobile phone apps and engaging with schools and community groups.

Performance

Performance assesses the effectiveness of marine parks, through monitoring, evaluation and reporting. Baseline ecological and socio-economic information and predictions of change were documented in a series of reports. Changes from the baseline condition are monitored over time using a range of selected indicators.

300+
transects
surveyed by divers
across the State.

4194
land, air
and **boat**
patrols



240
warnings
and
6 expiations

Compliance

Compliance ensures illegal activities are minimised and penalised where required and is being implemented in a cost-efficient manner focusing on Sanctuary Zones and conservation priorities.

Ecological monitoring

Marine parks are mapped and underwater surveys performed to increase understanding of the biodiversity and habitats that marine parks protect. A range of ecological indicators and methods are used to monitor for ecological change.

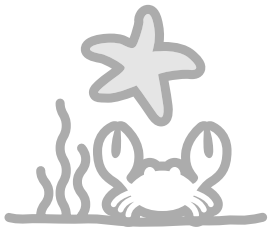
Ecological methods and indicators

Ecological monitoring is conducted in marine parks both inside and outside sanctuary zones using diver surveys and Baited Remote Underwater Video Systems (BRUVS). Monitored sites are surveyed at regular intervals to detect change over time.

Diver surveys record the size and abundance of fish, macro-invertebrates such as lobster, and habitat-forming macro-algae.

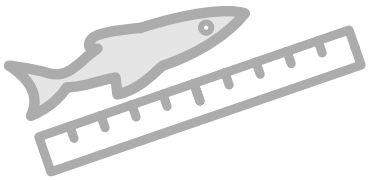
BRUVS complement the diver surveys, placing cameras with a fish attractant on the seafloor covering reef, sand and seagrass communities. Since 2012, 464 BRUVS surveys have been conducted.

Scientists use three indicators to assess ecological change: biodiversity, fish size, and the abundance of key species.



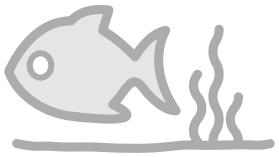
Biodiversity

Monitoring species assemblages in sanctuary zones is essential to understand how the ecosystem functions and changes with protection. Ecosystems impacted by human activity often have simplified food webs due to the removal of species with particular roles in that ecosystem. The intention of sanctuary zones is to preserve biodiversity and encourage a more natural, balanced ecosystem.



Fish size

Fish size is an important indicator of ecosystem health with larger fish often being absent or rarer in communities impacted by humans. Protected areas allow fish to grow to a larger size. Large fish produce more young than small fish of the same species. This means that larger fish contribute more to regeneration of a population.



Key species

Inside sanctuary zones, monitoring is focused on key species, such as western blue groper and rock lobster, which play a critical role in the ecosystem as a keystone species or are commercially and recreationally important.

Some key species are expected to increase in size and abundance over time inside some sanctuary zones.

Scientists deploying a Baited Remote Underwater Video System (BRUVS)

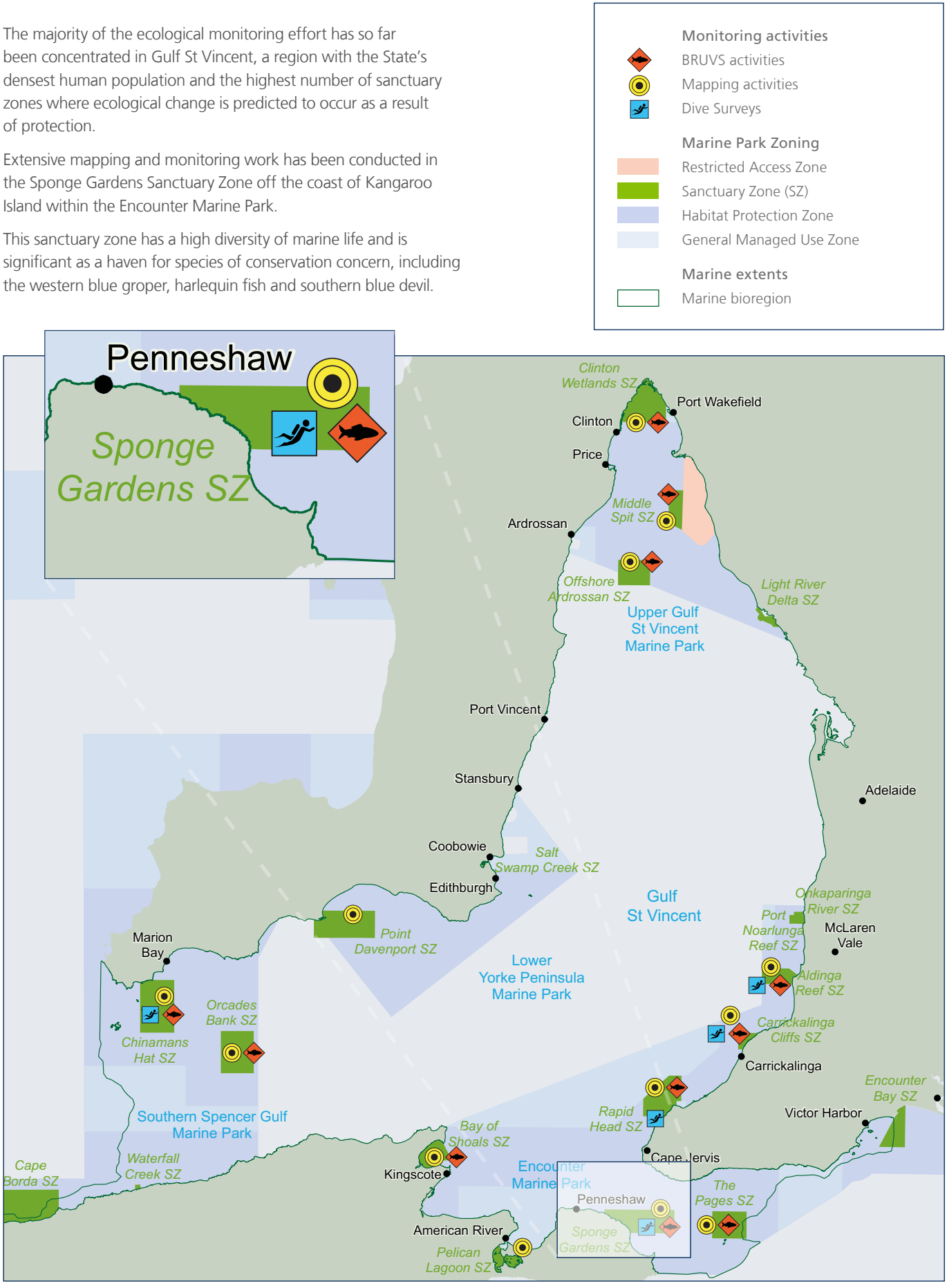
Ecological monitoring case study

Sponge Gardens Sanctuary Zone

The majority of the ecological monitoring effort has so far been concentrated in Gulf St Vincent, a region with the State's densest human population and the highest number of sanctuary zones where ecological change is predicted to occur as a result of protection.

Extensive mapping and monitoring work has been conducted in the Sponge Gardens Sanctuary Zone off the coast of Kangaroo Island within the Encounter Marine Park.

This sanctuary zone has a high diversity of marine life and is significant as a haven for species of conservation concern, including the western blue groper, harlequin fish and southern blue devil.



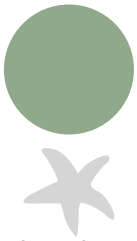
Key findings

Biodiversity

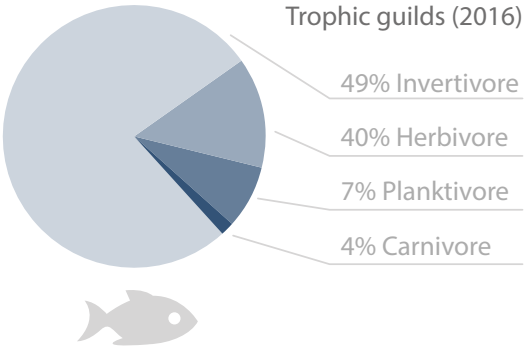
Surveying in the Sponge Gardens has revealed more than 200 species of animals.

Crustaceans
4% (7 Species)

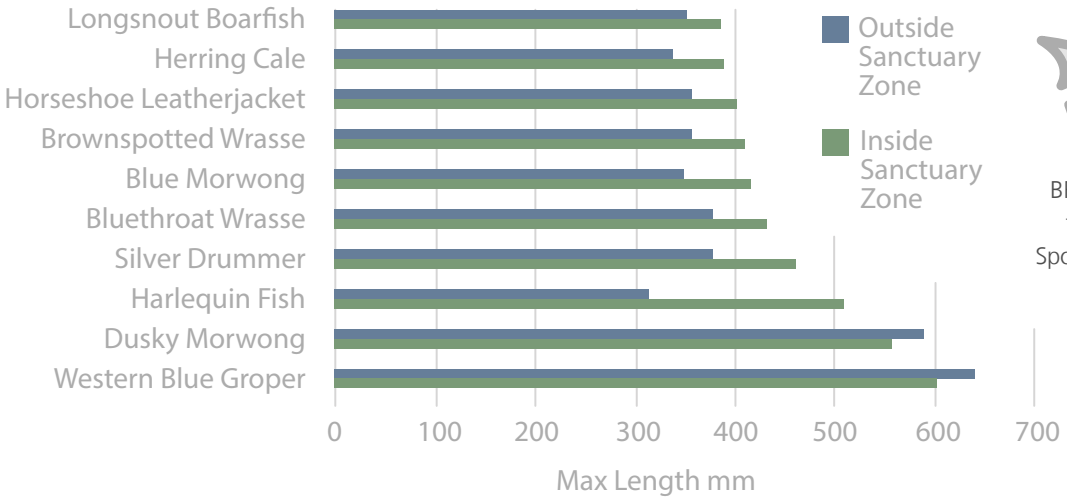
Molluscs
6% (17 Species)

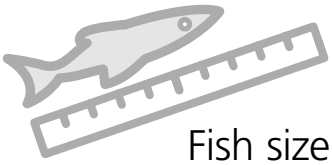


Echinoderms
18% (26 Species)



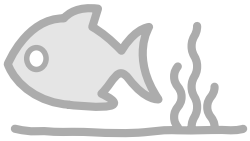
Fishes
72% (69 Species)





Fish size

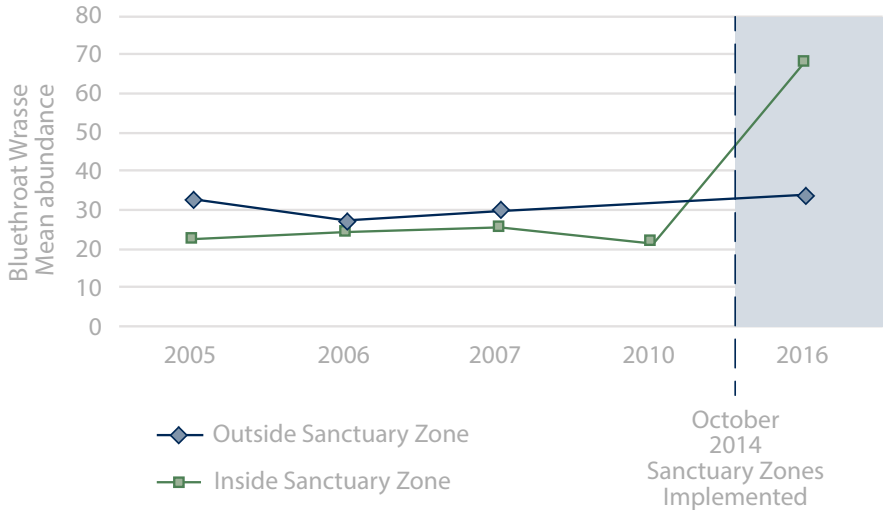
BRUVS are being used to survey fish size inside and outside the Sponge Gardens Sanctuary Zone.



Key species

A range of key species is being surveyed in the Sponge Gardens Sanctuary Zone including rock lobster, abalone, and a range of reef fishes.

Bluethroat wrasse



Southern blue devil

Harlequin fish

Western blue groper

In focus

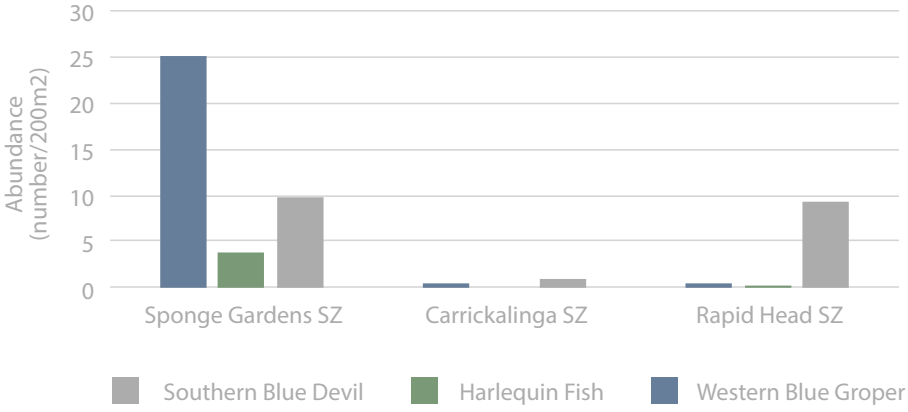
A refuge for reef fish

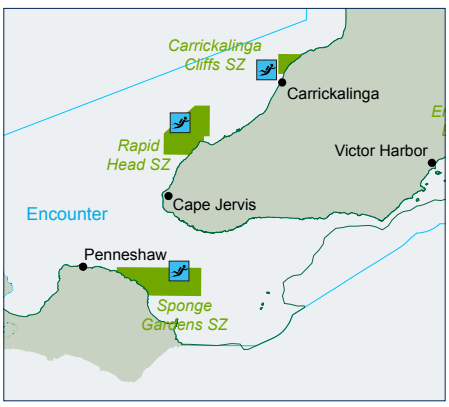
Western blue groper, harlequin fish and southern blue devil are iconic South Australian reef species of conservation concern.

All three species are restricted to shelf waters less than 60m deep, and prefer rocky reefs with drop-offs, caves and ledges. They are particularly vulnerable to disturbance, as they are long lived and don't move far from their homes.

Divers also love these species because of their stunning colours, relative rarity and, in the case of western blue groper, their huge size and inquisitive nature.

The Sponge Gardens Sanctuary Zone has a coastal reef structure that provides a vital haven for these species (see adjacent swath map) with higher numbers there than other sanctuary zones in the Encounter Marine Park.





Mapping seafloor habitats

Inventory mapping

The seafloor of the Sponge Gardens Sanctuary Zone is dominated by invertebrates on sand (57% including sponges and gorgonians), bare sand with nothing attached (24%), isolated patches of offshore reef that are mainly outside the areas identified as sponge habitat (18%), and a small area of seagrass (2%) just offshore from the coastal reef at Snapper Point.

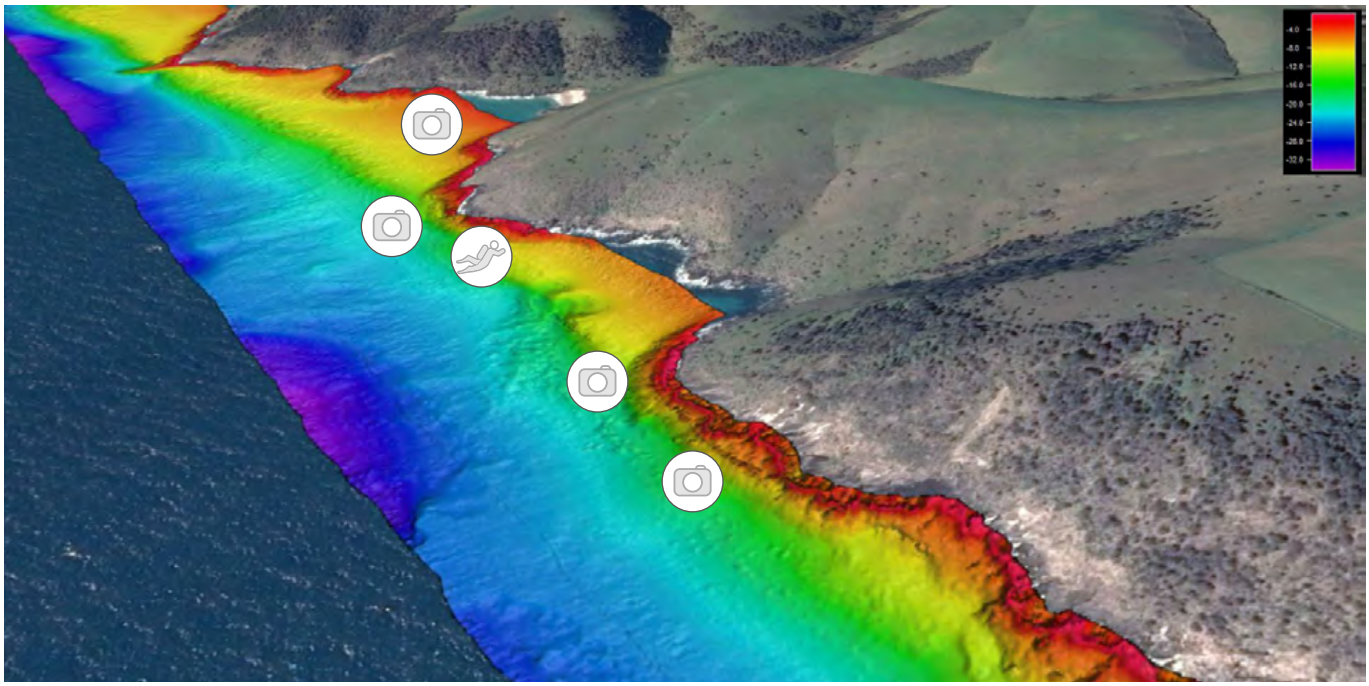
Swath mapping

Swath mapping generates images of the depth and shape of the ocean floor. The swath map of the Sponge Gardens Sanctuary Zone (below) shows steep gradients from the shoreline to seafloor. The zone is made up predominantly of hard substrate below sand with reef fringing from the shoreline.

Mapping of seafloor habitats improves our knowledge and understanding of sanctuary zones and assists in the selection of sites for ongoing monitoring.

Baited Remote Underwater Video Systems (BRUVS)

200 metre diver survey



Swath Mapping of the Sponge Gardens Sanctuary Zone

Socio-economic monitoring

The primary aim of marine parks is to protect and conserve marine biodiversity, and they are also designed to benefit communities by encouraging nature-based tourism.

The marine parks provide public appreciation and education opportunities and allow for ecologically sustainable development and commercial and recreational fishing (outside of sanctuary and restricted access zones).

The Marine Parks Performance Program is assessing socio-economic activities for local and regional changes related to the implementation of marine parks.

Socio-economic activities

Tourism

Shark cage diving
Great white shark cage diving has taken place at the Neptune Islands since the late 1970s. Marine parks ensure the long-term viability of this industry by protecting the local environment.

Visitor numbers have steadily increased over time, with the rise continuing after the implementation of the Neptune Islands Group Marine Park. Visitor numbers from the 2014-15 and 2015-16 seasons show an increase from 8,282 visitors to 10,322 visitors respectively.

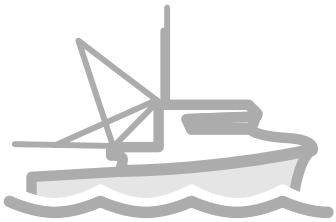
Swimming with dolphins/seals
Kangaroo Island Ocean Safari received the first South Australian Commercial Marine Mammal Interaction Permit to swim with long-nosed fur seals in 2016. This allows for sightseeing, viewing wildlife and if possible, swimming with dolphins and long-nosed fur seals within a sanctuary zone.

Public support

Regular phone surveys gauge community support and perceptions on a range of factors related to the marine environment and marine parks in South Australia. In almost every year since 2006, a representative sample of adult South Australians from across the State has been telephone interviewed. Results show public support of marine parks averaging 88%.

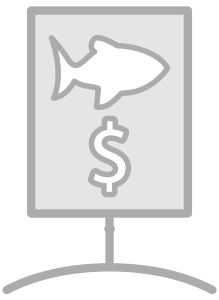
Fisheries

A number of initiatives were implemented during the introduction of marine parks to reduce the impact of closing access to commercial and recreational fishers in sanctuary zones. The performance of various fisheries is being monitored to assess whether they may have changed due to marine parks. Publicly available data are sourced from other organisations such as SARDI, PIRSA and EconSearch. Participation in recreational fishing is being assessed through regular phone surveys.



Fish prices

Fish prices are recorded to gain insight into the potential impact of marine parks on the availability of local fish to consumers. The retail prices of six popular species (King George whiting, snapper, calamari, garfish, yellowfin whiting and snook) have been recorded at three Adelaide retail outlets since June 2014.



Collaboration and research

Monitoring the State's marine parks represents a significant challenge. Many partners contribute time, data and expertise to build understanding of how marine parks are performing.

More than 15 collaborative monitoring and research projects are currently under way or have been completed. Collaborative efforts can be categorised as community, academic and inter-agency.

Community

Example:
A citizen science program to measure size and abundance of cockles inside and outside of the Piccaninnie Ponds Sanctuary Zone in the Lower South East Marine Park.

Academic

Example:
A desk top review of connectivity in marine parks by the University of Adelaide.

Example:
A PhD study 'Assessing the knowledge, social values and stewardship of white shark cage-diving participants within the sanctuary zone of the Neptune Islands Group (Ron and Valerie Taylor) Marine Park.' Southern Cross University, NSW and Flinders University, SA

Inter-agency

Example:
A rock lobster survey in Kangaroo Island's Cape du Couedic Sanctuary Zone in conjunction with SARDI, PIRSA and the rock lobster industry.

More information on current marine parks research projects is available at marineparks.sa.gov.au

Disclaimer

While every reasonable effort has been made to verify the information in this fact sheet use of the information contained is at your sole risk. The Department recommends that you independently verify the information before taking any action.

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