

ILLUSTRATIVE EXAMPLE 4: PROTECT

MARINE PROTECTED AREAS PROTECTING THE GREAT SOUTHERN REEF

A Marine Protected Area (MPA) is a section of sea and associated seabed established by law for the protection and maintenance of biological diversity and natural and cultural resources. Different names are used to describe marine protected areas including marine parks, marine reserves, marine conservation reserves, marine nature reserves and marine sanctuaries. Marine sanctuaries offer the highest level of protection as 'no take' areas.

A network of state and Australian Marine Protected Areas enacted by legislation protects the Great Southern Reef. Legislation is also used to protect threatened and endangered species and biological communities of the Great Southern Reef such as the Commonwealth listing in 2012 of the Giant Kelp Marine Forests of Southeast Australia as Endangered.

State protections

Australian states are responsible for managing the 'coastal zone' that extends 5.5 km from the coastline. The Great Southern Reef falls mainly into that zone putting it under the jurisdiction of NSW, Victoria, South Australia, Western Australia, and Tasmania.

Each state has a network of carefully managed marine areas and system of zoning that reflects the value of different habitats and species and the threats or stresses they face.

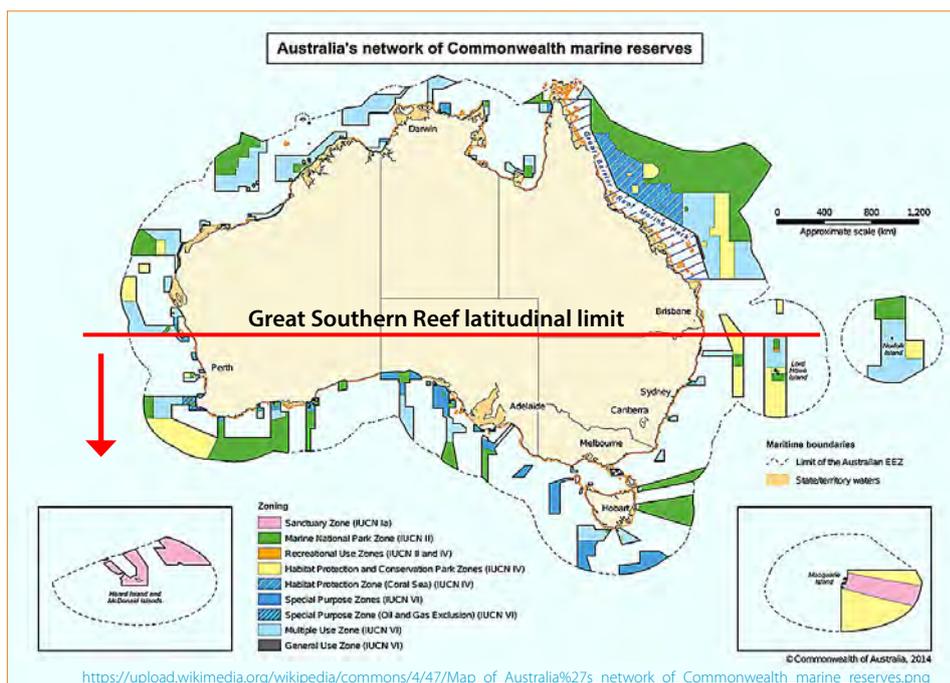
In NSW for example, the system of marine protected areas includes 12 aquatic reserves, 6 multiple use marine parks and NSW National parks and nature reserves that include

marine habitats. The Department of Primary Industries controls the the day-to-day management of these parks and reserves.

Commonwealth protections

The Australian Government has responsibility for ocean waters from the coastal zone to the edge of the Australian Economic Zone. They also have responsibility for the protection of threatened and endangered species and communities. A network of 60 Australian Marine Reserves protects habitats and marine life while providing for multiple uses such as tourism and fishing. Zoning is used in marine parks to show where different activities are permitted. **Figure 1**

Figure 1: Australia's network of Commonwealth Marine Reserves



Source: <http://www.environment.gov.au/system/files/pages/709fa30c-d649-4d66-8dfb-b831d1f9ec16/files/national-map.pdf>

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THE VALUE OF MARINE PROTECTED AREAS

'Scientific studies have confirmed that well-regulated, well-enforced marine protected areas (MPAs) can provide significant ecological benefits, increase resilience to natural and anthropogenic disturbances, and allow for ecosystem recovery. For example, fully and highly protected MPAs can allow depleted fish populations to recover, serve as refuges for endangered species, and increase resilience to climate change.'

Source: <https://marine-conservation.org/ocean-advocacy/>

Marine Protected Areas are regarded by scientists as critical tools for safeguarding biodiversity, habitats, and ecosystem processes and maintaining or restoring the health of ocean ecosystems. The ecological, social, and economic benefits of MPAs are embedded in the *UN Sustainable Development Goals* directly through Goal 14: Life below water and are a recognised strategy for marine ecosystems in the *UN Decade of Ecosystem Restoration*.

A. Environmental values of MPAs

i. Safeguarding biodiversity.

Global scientific studies show that compared to unprotected ecosystems, Marine Protected Areas

- increase biodiversity by an average 21%
- increase the size of fishes and other marine organisms by 28%.
- have, on average, 450% more biomass
- help protect threatened, endangered or unique marine life

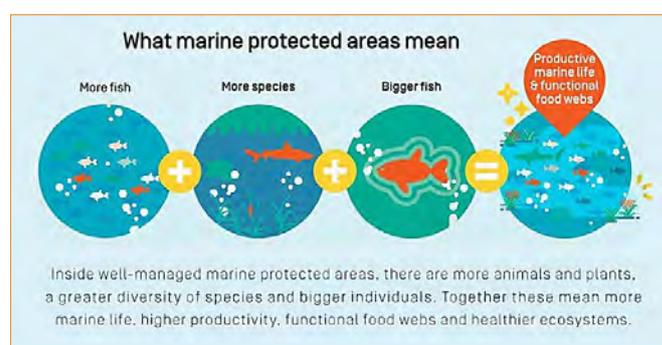
ii. **Ecological benefits** extend to adjacent unprotected ecosystems through the movement of species from an MPA thus improving biodiversity and ecological balance.

iii. **Protecting large predators**, such as sharks, essential to healthy food webs and stable ecosystem functioning. Large predators keep populations at lower trophic levels in balance and can assist ecosystems to recover from environmental challenges such as invasive species.

The journal *Nature* reported in Volume 506, 2014, that *'large, highly protected, isolated, well-enforced and long-standing marine reserves have 14 times as much shark biomass, twice as many large fish and five times as much fish biomass as do unprotected areas.'*

B. Economic and social values of MPAs

- Supporting local economies** through activities such as tourism and fishing by maintaining the biodiversity on which they depend.
- Increasing the resilience of coastal communities** to cope with change, including extreme weather events such as storms and long-term change such as ocean warming.
- Educating citizens** about ecosystem functioning and the need for effective management and protection.
- Undertaking scientific research**
- Appreciating** the role of nature in human wellbeing and **creating hope** for future generations facing an uncertain environmental future



Source: <https://saveourseasmagazine.com/marine-protected-area/>

Effectiveness

'MPA effectiveness, in ecological terms, is commonly measured by comparing values of ecological or biological measures (e.g., sizes of organisms, density and biomass of fish assemblages, species richness, live cover of benthic organisms) in MPAs and adjacent unprotected areas and/or before and after an MPA is established.'

Source: <https://www.frontiersin.org/articles/10.3389/fmars.2018.00223/full>

A number of academic studies make the point that legislation, protection, time protected, stakeholder consultation and enforcement are also important influences on the success / effectiveness of a marine protected area. These can be used as criteria when evaluating the effectiveness of MPAs as a management strategy for the Great Southern Reef.

For information and a map of NSW Marine Protected Areas visit the NSW Department of Primary industries <https://www.dpi.nsw.gov.au/fishing/habitat/protecting-habitats/mpa>

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GREAT SOUTHERN REEF MARINE PROTECTED AREAS

VICTORIA: PARKS AND SANCTUARIES

Victoria's coastal waters form part of the Great Southern Reef. The state's Marine National Parks and Marine Sanctuaries cover approximately 63,000 hectares or 5.3% of Victoria's marine waters and protect a range of significant species and important habitats, maritime artefacts and evidence of past Indigenous occupation and use. Victoria's parks system aims to protect viable representative samples of the State's natural marine environments.

1. Wilsons Promontory Marine National Park (2002)

Wilsons Promontory Marine National Park's is Victoria's largest protected area. It's record for 'management and exceptional marine biodiversity, research and

conservation' has been recognised internationally with a **Global Ocean Refuge Platinum Award**. The award is issued by the Marine Conservation Institute as a part of its Blue Parks initiative that seeks to 'celebrate effective MPAs and incentivise governments, managers, communities and leaders to achieve effective conservation.' **Figure 2** shows why the park received this international award. The Park is managed by Parks Victoria with 30 plus partner organisations and volunteers.

Read more about Blue Parks here <https://marine-conservation.org/blueparks/>



WATCH the following videos showing the diversity of life on the Great Southern Reef within Wilsons Promontory Marine NP and the Award Parks Victoria received. <https://www.youtube.com/watch?v=Ql01RfhEuQI&t=6s>

Recent baited camera and towed video capture <https://www.youtube.com/watch?v=v5uSguSDCEI>

Figure 2: Blue Park Platinum Award for marine conservation

Wilsons Promontory Marine National Park protects a rich mixing zone of warmer eastern Australian waters and the colder waters of Bass strait to the west. This blending drives high biodiversity and supports many creatures across the park's sheltered bays, subtidal rocky reefs, kelp forests, and intertidal habitats. The coastline features beautiful sandy beaches, granite mountains and cliffs. The deep waters of Wilsons Promontory Marine National Park feature colourful sponge gardens, corals, and abundant fishes. Its diversity of sessile invertebrate communities is comparable to that of the Great Barrier Reef.

Wilsons Promontory Marine National Park is a refuge for great white sharks, humpback and southern right whales, and fur seals. It is considered a significant area for great white shark population recovery in Australia. Twenty-five shore and seabird species of conservation concern have also been sighted in Wilsons Promontory Marine National Park.

Wilsons Promontory Marine National Park was established in November 2002, and it is the largest marine protected area in Australia's Victoria state. The Park is one part of the state system of 13 Marine National Parks and 11 Marine Sanctuaries. These marine protected areas are managed by Parks Victoria's South Gippsland District management team in partnership with the Environment and Science Division as part of the strategic statewide MPA program. Parks Victoria also works closely with the Victorian Fisheries Authority in undertaking compliance activities, particularly in regard to surveillance for illegal fishing in no-take areas of Wilsons Promontory Marine National Park.

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2. Jawbone Marine Sanctuary (2002)

The Jawbone Marine Sanctuary is considered significant in the Victoria's state-wide system of marine Protected Areas because it represents significant ecosystems in Port Phillip Bay (Boonwurrung Country) and plays an important role in scientific research.

Extensive reefs formed by a wide band of basalt and boulders up to 30 m wide, occupy half of the sanctuary (15 ha). The reef is covered by shorter turfing

algae, coralline algae and Ulva (Sea Lettuce) as well as sponges, and temperate hard corals – all adapted to environmental extremes and high wave energy.

The coastline surrounding the sanctuary is highly urbanised, and the catchment has significant cropping and grazing. The marine environment faces stresses similar to other locations on the Great Southern Reef near large urban concentrations.



WATCH this video explaining the interconnections between species in the sanctuary and the importance of protection to maintaining the natural balance of species.

Protecting Jawbone Marine Sanctuary
<https://www.youtube.com/watch?v=s5tdNddr3Oc&t=225s>

Source: Jawbone Marine Sanctuary Care Group Facebook

SOUTH AUSTRALIA: PROTECT A UNIQUE SPECIES

Protecting the Giant Australian Cuttlefish

The Upper Spencer Gulf Marine Park is known as a breeding area for the Giant Australian Cuttlefish, a species endemic to southern Australia, found only the Great Southern Reef. The population that aggregates in the Northern Spencer Gulf is a unique sub species in need of special protection to ensure sustainability.

Each winter tens of thousands of the cuttlefish aggregate to spawn on an 8 –10 km stretch of rocky reef where they lay their eggs within and underneath the rocks. The spawning event is a significant tourist attraction and cuttlefish harvesting is an important activity for commercial and recreational fishers in South Australia.

Protection measures

There are measures within the Marine Park to ensure the sustainability of the species

- Exclusion Zone – a Cephalopod (squid, cuttlefish and octopus) fishing closure between Whyalla and the Point Lowly lighthouse.
- Cuttlefish Coast Sanctuary Zone – fully protected, to protect the cuttlefish and the whole food web and ecosystem it relies on to survive.
- Fishing limits outside exclusion zones – personal bag and boat limits



Giant Cuttlefish with an Eastern Blue Groper in its mouth.
Image: Elaine de Jager, Wikimedia Commons

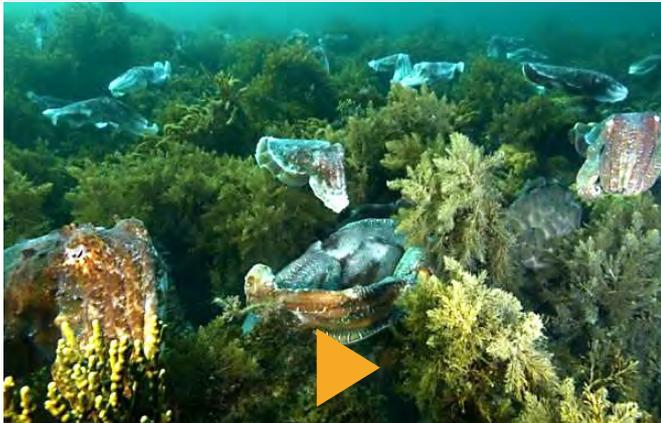
Flexible zoning

The Marine Park Management Plan also allows for additional protections and/or temporary restrictions to protect a species. In response to fluctuating populations the entire Northern Spencer Gulf was temporarily closed to fishing in 2013 and a temporary extension around Point Lowly was added for the period of the 2021 spawning event.

In recent years cuttlefish populations have rebounded. In 2020, the temporary ban of fishing cuttlefish from the entire northern Spencer Gulf was lifted.

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WATCH: All about South Australia's Cuttlefish Aggregation <https://www.youtube.com/watch?v=6gav27Nwfgc>



Source: Great Southern Reef <https://greatsouthernreef.com/cuttlefish>

Take a **VIRTUAL TOUR** with South Australia National Parks and Wildlife. <https://roundme.com/tour/576169/view/1869429/>



Learn more



The protection of the Giant Australian Cuttlefish on the Great Southern reef website here. <https://greatsouthernreef.com/cuttlefish>

SA National Parks and Wildlife Service: Upper Spencer Gulf Marine Park <https://www.parks.sa.gov.au/parks/upper-spencer-gulf-marine-park>

WATCH: Giant cuttlefish spawning aggregation from Ocean Imaging https://www.youtube.com/watch?v=o2Fnx9bxn_M

OTHER EXAMPLES included in the Google Site – Stage 6: Great Southern Reef.

- Solitary Islands Marine Parks and Cabbage Tree Bay Aquatic Reserve (NSW)
- Ngari Capes Marine Park in WA

References

Marine parks Australia <https://parksaustralia.gov.au/marine/parks/>

National Heritage Trust: Marine Protected Areas Brochure <https://parksaustralia.gov.au/marine/pub/scientific-publications/archive/nrsmmpa-protect.pdf>

Marine Protected Areas – securing benefits for sustainable development <https://www.geog.ucl.ac.uk/news-events/news/news-archive/2018/january-2018/marine-protected-areas-2013-securing-benefits-for-sustainable-development>

Marine Protected Areas Infographic <https://saveourseasmagazine.com/marine-protected-area/>

G. Edgar et al., "Global Conservation Outcomes Depend on Marine Protected Areas with Five Key Features," *Nature* 506 (2014) <https://www.nature.com/articles/nature13022>

Revisiting "Success" and "Failure" of Marine Protected Areas <https://www.frontiersin.org/articles/10.3389/fmars.2018.00223/full>

Marine Parks and Sanctuaries Victoria <https://www.marineandcoasts.vic.gov.au/marine/marine-national-parks-and-sanctuaries>

SA National Parks and Wildlife Service: Upper Spencer Gulf Marine Park <https://www.parks.sa.gov.au/parks/upper-spencer-gulf-marine-park>

Marine Parks SA Interactive map <https://www.marineparks.sa.gov.au/find-a-park>

Great Southern Reef <https://greatsouthernreef.com/cuttlefish>

Giant Australian Cuttlefish 2020 Survey Results. https://www.youtube.com/watch?v=0kFNm_ojoL0

Explaining the science behind Giant Australian Cuttlefish <https://www.youtube.com/watch?v=y-odZJ2PvGI>

Protection zone extended for cuttlefish season <https://www.whyllanewsonline.com.au/story/7249425/protection-zone-extended-for-cuttlefish-season/?cs=1550>

Increased protection for Giant Australian Cuttlefish <https://www.premier.sa.gov.au/news/media-releases/news/increased-protection-for-giant-australian-cuttlefish>

Fishing limits for cuttlefish https://www.pir.sa.gov.au/fishing/fishing_limits/cuttlefish