Marine Park 5 Thorny Passage Marine Park

Park at a glance

Thorny Passage Marine Park is adjacent to the Jussieu Peninsula and includes waters between Coffin Bay and Memory Cove and Greenly and Rocky Islands.

At 2,472 km², it represents 9% of South Australia's marine parks network.

Community and industry

- The Nauo and Barngarla Aboriginal people have traditional associations with the region.
- Commercial fishers target southern rock lobster, abalone, pilchards, western king prawn, mud cockle and a variety of smaller scalefish species.
- Aquaculture is also significant, with extensive oyster farming at Coffin Bay.
- The area is a major tourism destination with drawcards including national parks and activities such as fishing, walking and boating around Coffin Bay, Almonta Beach and Frenchman Bluff.

Fauna and flora

- Species of conservation concern such as the vulnerable Australian sea lion, New Zealand fur seals, endangered white-bellied sea eagles and endangered osprey rely on habitats within the marine park.
- Southern right whales aggregate at Sleaford Bay.

Habitat

- Thorny Passage Marine Park includes parts of the Eyre Bioregion.
- Habitats typical of this region include:
 - sheltered bays and inlets of Coffin Bay with reefs and seagrass meadows,
 - tidal flats, sandy plains, beaches and rocky coasts,
 - exposed, high-energy surf beaches, cliffs and rocky headlands,
 - reefs, offshore islands and large areas of sandy seafloor habitat.
- The habitats inside Thorny Passage Marine Park provide critical baselines to measure any changes to the State's marine ecosystems that may arise over time from, for example, pollution or climate change.

- Coffin Bay is a Wetland of National Importance, providing substantial nursery habitats for a fish and other marine life and bird life.
- Marine life is influenced by the warm Leeuwin Current, originating in Western Australia, the cold Flinders Current from the south east and cold, nutrient-rich upwellings originating in deep water off the continental shelf.

Boundary description

The Thorny Passage Marine Park comprises the three areas set out below.

- The area bounded by a line following the seaward limit of the coastal waters of the State surrounding Rocky Island.
- The area bounded by a line following the seaward limit of the coastal waters of the State surrounding Greenly Island.
- The area bounded by a line commencing on the coastline at median high water at a point 135°59'34.93"E, 34°55'49.28"S (within Memory Cove Wilderness Protection Area), then running progressively:
 - easterly along the geodesic to a point 136°2'32.72"E, 34°55'49.28"S;
 - southerly along the geodesic to a point 136°2'32.72"E, 35°7'6.19"S;
 - westerly along the geodesic to its intersection with the seaward limit of the coastal waters of the State at a point 135°42′26.45″E, 35°7′6.19″S;
 - north-westerly along the seaward limit of the coastal waters of the State to a point 135°8′9.42″E, 35°25′4.92″S;
 - easterly along the geodesic to its intersection with the coastline at median high water at a point 135°21′33.25″E, 34°25′4.92″S (at or about Frenchman Bluff); and
 - generally southerly, north-westerly and south-easterly along the coastline at median high water (inclusive of all bays, lagoons and headlands) to the point of commencement.

NOTE: This boundary description is indicative only. It does not describe inclusions and exclusions of specific land parcels. For this detailed information, please refer to the DEH website: www.marineparks.sa.gov.au or Surveyor-General's office for the relevant marine park plan (known as a Rack Plan).



Thorny Passage Marine Park



Bioregions and South Australia's marine parks network

Eight biologically distinct regions have been identified off South Australia's coastline. The State's marine parks have been carefully designed to include parts of each bioregion and the various habitats within them.

By including some examples of the marine biodiversity typical of the Eyre Bioregion, Thorny Passage Marine Park contributes to the marine parks network's goal of representing and protecting examples of the full diversity of South Australia's marine life.

The marine life, habitats and natural processes typical of this region include the extensive system of bays and inlets of Coffin Bay, the open waters south of Point Sir Isaac and offshore islands adjacent to Point Avoid. The significant southern right whale aggregation area in Sleaford Bay is also contained within the marine park. Marine life of the region is influenced by the Leeuwin and Flinders Currents and upwellings of cold, deep waters.

The 14 marine park Design Principles

To guide the initial identification and final selection of South Australia's multiple-use marine parks, 14 Design Principles were defined and adopted by the Government. The seven Biophysical Principles and seven Community Principles help ensure the marine parks network meets the objects of the *Marine Parks Act 2007*, as well as South Australia's national and international obligations for marine protection.

The Biophysical Design Principles guided the identification of proposed marine park sites. The Community Design Principles were then applied to fine-tune site selection of the 19 multiple-use parks in the network.







Biophysical Design Principles

The seven Biophysical Principles address environmental conservation.

In the first instance, all parks were designed to meet the Precautionary Principle. Rigorous application of the Adequacy, Comprehensiveness and Representativeness Principles ensure the marine parks network meets South Australia's national and international marine protection obligations.

The remaining three Biophysical Principles helped prioritise important local sites, to ensure the marine parks network maximises ecological outcomes (South Australia's Strategic Plan Target 3.4).

The Precautionary Principle

The Precautionary Principle is a risk-management tool which requires action to be taken now in areas where scientific knowledge is not yet complete. One of the ways the Precautionary Principle has been applied in developing marine parks is to include areas of unsurveyed seabed habitats.

In the Eyre Bioregion, 14,973km² (80%) of seabed habitats are yet to be surveyed.

As a precautionary measure, 1,646km² (11%) of unsurveyed habitats are included within the Thorny Passage Marine Park. Including unsurveyed habitat increases the likelihood that all of the habitats that actually exist in the region are included within a marine park.

The Adequacy Principle

Adequacy is achieved if the marine park provides for both ecosystem integrity and the viability of whole populations of species.

A marine park is considered to have achieved Adequacy if both it and the network it contributes to are large enough to protect the species and habitats found there, and close enough to connect populations.

Thorny Passage Marine Park covers 2,472 km² (9% of the whole network). It has been designed to include multiple examples of each habitat type where possible, at sizes sufficient to contain viable populations of marine species.

The Principles of Connectivity and Linkages, Resilience and Vulnerability and Ecological Importance also contribute to the Adequacy of a marine park. Ultimately, Adequacy is closely linked to the success of marine park management plans with zoning.

Comprehensiveness and Representativeness Principles

To meet the Principle of Comprehensiveness, examples of all habitats that occur in a bioregion need to be included within whatever marine parks are in that bioregion.

To be Representative, all habitats in a region (e.g. reefs, beaches, seagrass, mangroves) need to be included across the full variety of physical situations in which they occur (e.g. shallow and deep water reefs, low and high energy beaches). This variety must be represented within the combination of parks created in a bioregion.

Habitats of Thorny Passage Marine Park are very diverse. Along the exposed coasts between Coffin Bay National Park and Lincoln National Park, habitats include cliffs and rocky headlands with wave-cut shore platforms and fringing reefs, deep offshore reefs and sandy plains, remote offshore island environments surrounded by reefs, and sandy beaches backed by vast dune systems. Within the shallow, sheltered waters of Coffin Bay, habitats include seagrass meadows, rocky shores and reefs, low energy beaches and dune systems, tidal flats and saltmarshes

A number of offshore islands including Greenly, Rocky and the Four Hummocks group are included in the marine park. Although their shorelines and adjacent seafloor habitats are unsurveyed, they represent islands as a habitat type and as important breeding sites for seabirds and Australian sea lions.

Connectivity and Linkages Principle

Connectivity describes how plants and animals move between different places. Linkages refers to the transfer of materials (e.g. organic matter) and energy flows. Connectivity and Linkages both depend on the way currents, tides and waves move water and on the abilities of marine life to move between different areas.

Thorny Passage Marine Park creates continuous Connectivity and Linkages alongshore from Frenchman's Bluff, around the coast of Coffin Bay, to Memory Cove. Offshore, the marine park provides the opportunity to protect continuous connected habitats from the sheltered waters of Coffin Bay through to the deep water reefs and sandy plains at the furthest extent of the island groups such as the Whidbey Isles (at the limits of State waters). This helps protect species whose life cycles depend on access to different feeding, spawning, breeding and nursery habitats in small areas, as well as species dependent on areas separated by anything from tens of kilometres to hundreds of kilometres.

Connections and linkages within this region and between this and other regions are multi-dimensional and of continental scale. The warm Leeuwin Current, originating in Western Australia, flows eastward across the Great Australian Bight transporting nutrients and larvae, linking this region to more western ecosystems. However, the region is also strongly influenced by the cooler Flinders Current flowing from the south east and by the upwellings of nutrient rich cold waters originating off the edge of the continental shelf. The mixing zone creates a transition from western warm waters to the cool temperate conditions found in State waters south and east of this region.

The mixing of larvae and nutrients from three different sources also contributes to the high biological productivity and diversity of plants, animals and habitats of this region.

Connections with other regions are also established by the migratory species which rest and feed in the Thorny Passage Marine Park. Sleaford Bay is an important pathway and aggregation area for the southern right whale, while the tidal flats of Coffin Bay are an important feeding and resting destination for migratory shorebirds through the summer months before they return to the northern hemisphere. Including such areas within the boundary of the marine park creates the opportunity to protect important places in the life cycles of these species.

Resilience and Vulnerability Principle

The combined Principle of Resilience and Vulnerability encourages the inclusion of places, plants and animals that are more susceptible to degradation or decline and/or less able to recover from damaging impacts.

Less resilient habitats, plants and animals are less able to resist disturbances or pressures. More vulnerable habitats, plants and animals are less able to recover if pressures are removed. For example, some seagrasses may take decades or more to recover from disturbance.

Examples of less reliant and more vulnerable habitats, plants and animals in Thorny Passage Marine Park include populations of Australian sea lions located at Little, Four Hummock, Price and Liguanea Islands, which have been identified as highly vulnerable to human pressures.

The extensive tidal flats, beaches and saltmarshes of Coffin Bay, and the fauna they support, are very vulnerable to the sea-level rise expected to accompany climate change. Seagrasses are also vulnerable to physical disturbance and declining water quality.

Thorny Passage Marine Park is designed to help protect less resilient and more vulnerable habitats, plants and animals from the impacts of climate change by including coastal parcels of land which may allow habitats such as saltmarshes to move inland if sea levels rise.

Ecological Importance Principle

Large scale natural processes such as currents and upwellings are key drivers of the ecological character of this region. The cold, nutrient rich waters rise from the depths beyond the edge of the continental shelf adjacent to Point Sir Isaac, but their influence is felt throughout the region. The nutrients brought to the surface drive the production of plankton which, in turn, stimulates the entire food web of the surrounding region, from small fish such as pilchards to large predators such as tuna and sharks.

Coffin Bay is the largest estuary on Eyre Peninsula and the second largest in South Australia. It is the only estuary in South Australia that is orientated northwest and it is a regionally important nursery area for a wide range of fish of commercial and recreational importance.

Coffin Bay is also a Wetland of National Importance with its shallow sandy shores and saltmarshes providing food for local and migratory shorebirds, such as sanderling, grey plover, sooty oystercatcher and pied oystercatcher.

Tidal races within Coffin Bay provide for sponge garden habitats, similar to those found in Baird and Venus Bays and Bay of Shoals and Pelican Lagoon on Kangaroo Island. Coffin Bay also features some unusual reefs structured by biological communities of mussels and oysters, rather than the more common reef structure provided by plants such as kelp.

Williams Island hosts breeding pairs of the endangered whitebellied sea eagle and nesting pairs of rare Cape Barren geese.

Liguanea, Smith, Price and Lewis Islands provide important breeding and haul-out sites for the Australian sea lion. Liguanea Island hosts a nationally significant breeding and haul out site for New Zealand fur seals. Sleaford Bay is a recognised aggregation area for the vulnerable southern right whale.

Reefs at a number of locations are important to the western blue groper.

The region is important for cowries and other specimen shells with at least a dozen known species, most of which are rare or of conservation concern.

Unusual or rare species found in the area include the rare and endemic nudibranch (sea slug) *Sclerodoris trenberthi*, the rare tropical species deep velvetfish (*Kanekonia queenslandica*) and the velvet octopus *Grimpella thaumastochei*.





Community Design Principles

Synergies With Existing Protected Areas Principle

By aligning with existing protected areas, marine parks can contribute to the establishment of protected corridors across the land-sea interface. Thorny Passage Marine Park borders with several terrestrial protected areas such as Coffin Bay National Park, Lincoln National Park and the Memory Cove Wilderness Area. Several conservation parks are included within the boundary of the marine park, such as Greenly and Rocky Islands.

Complementing Existing Management Principle

Management of South Australia's marine parks will complement, but not replace, current management arrangements. By providing a more inclusive management framework, South Australia's marine parks network is designed to help existing environmental management practices.

The District Council of Lower Eyre Peninsula plays an important role in managing coastal Crown lands which abut and in some cases are included in the marine park. Thorny Passage Marine Park management will seek to integrate with existing local government management practices for the continued care of coastal Crown land community assets.

The Eyre Peninsula Natural Resources Management (NRM) Board is responsible for mitigating impacts on the marine environment from land-based activities. Ongoing monitoring of ecosystem health in Thorny Passage Marine Park will help the NRM Board prevent land-based pollution from reaching the sea.

Aquaculture policy zones exist within the waters of Coffin Bay. All existing aquaculture leases and zones within Thorny Passage Marine Park will be accommodated. Park management will seek to integrate with existing management by the Department of Primary Industries and Resources South Australia's (PIRSA) Aquaculture Division in the area to ensure that the established aquaculture industry can continue to benefit from healthy seas in the region.

PIRSA's Fisheries Division has established a netting closure in Coffin Bay. Management of Thorny Passage Marine Park will respect and complement existing fisheries management arrangements, and will not change bag, boat and size limits or other area-based fisheries management arrangements.

Wharf facilities exist at Coffin Bay as well as several boat ramps, moorings, jetties and lighthouses. All shipping and harbour activities will be accommodated within Thorny Passage Marine Park, as will the management and maintenance needs of shipping and boating facilities.

Wherever possible, provision will be made in the Thorny Passage Marine Park management plan with zoning to accommodate current and future economic, social and infrastructure requirements. Administrative agreements between agencies will support streamlined assessment so that marine parks do not create an extra approval process.

Give Consideration to the Full Diversity of Marine Uses Principle

The Government is committed to designing marine parks for conservation and for sustainable use, in close consultation with local communities and with minimal impact on existing activities.

The proclamation of the Thorny Passage Marine Park outer boundaries does not change the way people use the marine environment, or change any existing land or sea-bed tenure.

Wildcatch fisheries in the region target southern rock lobster, abalone, shark, pilchards, western king prawn and a variety of smaller scalefish species. Proclamation of Thorny Passage Marine Park does not displace any existing commercial fishing activity. The Government recognises that high-value catch areas occur within the marine park and will work with stakeholders during the development of the park management plan with zoning to avoid displacing effort wherever possible.

Aquaculture is a major economic activity in the region, with Coffin Bay accommodating extensive oyster farming operations. No existing aquaculture activities will be displaced as a result of the proclamation or the future marine park zoning arrangements of Thorny Passage Marine Park. In addition, no further approvals or permits will be required to conduct these existing activities. The habitats of the region are also important for biodiversity conservation and the marine parks program will seek to integrate with existing management strategies delivered by PIRSA Aquaculture to ensure that the needs of both marine parks and aquaculture are met.

Coffin Bay and the surrounding region is a major tourism destination. The coastal environment, national parks and activities such as fishing, boating and water sports are the chief visitor drawcards.

Recreational fishing occurs at many locations throughout the Thorny Passage Marine Park. Fishing charters are based in Coffin Bay and Port Lincoln and provide for offshore recreational fishing experiences. Opportunities for recreational fishing will be maintained at sites within Coffin Bay and Greenly Island and at Almonta Beach.

The outer boundary of Thorny Passage Marine Park does not change existing recreational fishing and boating activities and does not affect access to, or use of, jetties, break-walls or boat ramps. Existing access for recreational beach fishing will be maintained, except in small areas designated as "sanctuary" or "restricted access" zones in the Thorny Passage Marine Park management plan with zoning. This will be developed over the next couple of years with extensive community input.

With input from a Marine Park Local Advisory Group, industry and the community, a management plan with zoning will be developed for Thorny Passage Marine Park which will cater for ongoing community use of the area. The management plan will be subject to community consultation and every effort will be made to minimise impacts on people and businesses.

Respect Indigenous Interests and Culture Principle

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.

The Nauo and Barngarla Aboriginal people have traditional associations with the coastal land and marine environment. Aboriginal people have expressed the aspiration to negotiate traditional Aboriginal fishing rights through an Indigenous Land Use Agreement (ILUA). Thorny Passage Marine Park will provide for continued traditional fishing in accordance with any fishing ILUAs.

Give Consideration to Cultural Heritage Principle

Memory Cove is listed on the Register of the National Estate for its historic significance, and Coffin Bay and its surroundings are listed on the Register of the National Estate for naturalness values.

Cape Carnot is listed as a geological monument of international importance on the Register of the National Estate. The rocks of Cape Carnot are among the oldest known in South Australia.

The old whaling station at Sleaford Bay is of heritage significance.

Ensure Ease of Identification, Compliance and Enforcement Principle

Thorny Passage Marine Park was designed to ensure ease of identification, compliance and enforcement where possible.

The outer boundary of the marine park utilises prominent features, such as Frenchman's Bluff, for ease of identification. Along the coastline, the marine park boundary lies at the median high water mark unless otherwise specified. The offshore boundary of the marine park follows the limit of State waters.

Provide for Education, Appreciation and Recreation Principle

Thorny Passage Marine Park was designed to ensure the things we enjoy in this environment continue, by helping to maintain a healthy marine environment and our uses of it.

Further opportunities for education, appreciation and recreation will be achieved through the zoning and management planning process.

Need more information?

Marine Parks

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For further information, please see: *Design Principles Guiding the Development of South Australia's Marine Park Boundaries* and *Technical Report on the Outer Boundaries of South Australia's Marine Parks Network*. Both are available on the marine parks website: www.marineparks.sa.gov.au or by calling 1800 006 120.

