



An underwater guide

to plants and animals
in South Australia

*Updated
with a map
of marine
parks*



Exploring underwater

This guide will help you identify fascinating species you might find while snorkeling or diving in South Australia. In our southern Australian waters there are more than 10,000 species of plants and animals and most are found nowhere else in the world. South Australia has a unique marine environment, stretching from rugged cliffs and beautiful bays along the coastline to open expanses of ocean where some animals live at depths of more than 5000m. Some of our underwater habitats that you might explore include rocky reefs, sandy sea floor, seagrass beds, kelp beds or even mangroves.

Nineteen state marine parks and seven Commonwealth marine parks (which are further offshore) are working together to help protect these incredible ecosystems and the habitats and species they support.

In this guide we have included a small sample of the more common species that you might see underwater off the coast, in the gulfs or under jetties in South Australia. Some of these species you see may have travelled from far away.

Coastal terminology

Subtidal: the area below low tide mark which is always covered by water

Intertidal: the area that is covered by high tide and exposed at low tide

Substrate: the surface on which an organism lives

Sediment: matter such as sand and shells which settles on the beach and seafloor

Rocky shore: a rocky area where the sea meets the land

Rock platform: a flat rock which has formed a platform on a rocky shore

Rock pool: depressions in rock often caused by erosion which can hold water during low tide

Reef: a bar of rock or other material, lying beneath the surface of the water

Front cover images



Leafy sea dragon *Phycodurus eques*

Known locally as 'leafies', these protected marine fish can be found along the coast at Rapid Bay, the Bluff in Victor Harbor, multiple spots along Yorke Peninsula, Tumbly Bay jetty on the Eyre Peninsula, and Kangaroo Island. The name is derived from their appearance, with long leaf-like protrusions that serve as camouflage. The females lay eggs and the male incubates them on his tail. Leafies are the marine emblem of South Australia and are a focus for tourism and marine conservation programs.

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Giant Australian cuttlefish *Sepia apama*

A large cuttlefish up to 80cm long, found swimming over reefs across the southern half of Australia. This species can rapidly change colour and pattern to blend in with its surroundings. Breeding takes place in winter, at which time animals aggregate and males become territorial and aggressive. The females lay clusters of eggs in capsules on hard surfaces of reefs. Seasonally, the low rubble reefs off Whyalla support the largest breeding aggregations of Giant Cuttlefish in the world.

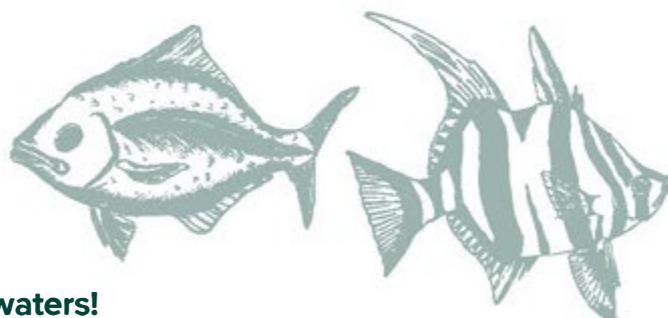
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Fishes

There are more than 600 fish species in SA waters!



Silver drummer *Kyphosus sydneyanus*

This species is found on reefs across western, southern and eastern Australia, and New Zealand. This large silver-grey fish has a dark tail fin and faint stripes across the body. Silver drummer grow to more than 80cm long. The juveniles and young adults are commonly seen individually or in small to large groups often with sea sweep. The largest adults rarely occur in shallow waters.

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Zebrafish *Girella zebra*

An abundant fish often seen in small schools around jetties, on shallow rocky reefs and also in weedy areas. Zebrafish have 8-10 black bars along the side of the body and bright yellow fins. Although zebrafish have small mouths, their hard blunt teeth help them eat various tough foods including seaweed and sea squirts.

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Moonlighter

Tilodon sexfasciatus

A round fish with a small pointed head and broad dark bands along the sides of the body. This species is similar to a tropical butterfly fish. The juveniles have large eye-spots near the top and bottom fins and a brighter yellow body. The larger adults (up to 40cm) are not common in the shallow waters of the gulfs, but the juveniles are often seen around jetties and on shallow reefs picking at the reef surface or the jetty piles for food.

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Victorian scalyfin *Parma victoriae*

A territorial fish related to the tropical damselfishes but larger, to about 25cm. Scalyfins are reef fish that defend their home cave against predators. They graze a crop of seaweed near the home cave to keep it from growing too high. The adults are a blue-grey colour, and the juveniles have an orange/yellow body with neon blue stripes and a blue eye-spot on the top fin.

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Western talma *Chelmonops curiosus*

Western talma are found on reefs in Western Australia and South Australia, usually deeper than snorkelling depths but occasionally in shallow water. This thin deep-bodied silver and black fish has a long pointed snout, which is used to pick at small invertebrates. Western talma have straight vertical edges to the fins, so another common name is the squareback butterflyfish. Juveniles have an eye-spot at the edge of the top fin which may help to ward off predators.

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Old wife *Enoplosus armatus*

A black and white striped fish with a small head and long fins on top. The spines on the first top fin contain venom. Old wives are sometimes seen in large groups around jetties or in seagrass beds near reefs. Larger individuals sometimes swim slowly in pairs around coastal reefs. The common name apparently comes from the grinding sound which the fish makes when stressed.

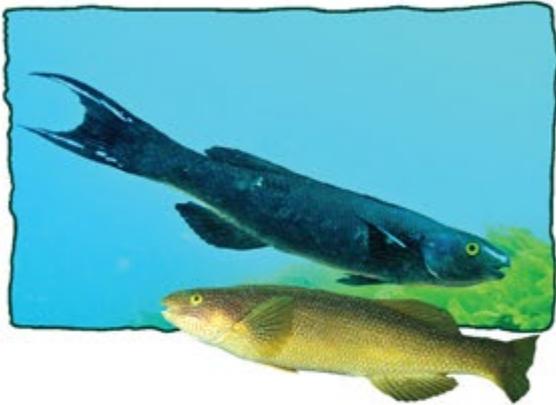
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Dusky morwong *Dactylophora nigricans*

A large morwong that is up to 1.2m long and also known as butterfly by Aboriginal People. Juveniles have copper-coloured brown spots and bars on the sides of the body and larger spots on the tail. Adults are a silvery-green or greenish-brown colour with no spots. Dusky Morwong are often seen at the edges of reefs, over sand patches or in seagrass beds. They have a varied diet, which includes worms, small crustaceans and brown seaweeds.

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Herring cale *Olisthops cyanomelas*

A common species that live in kelp and other brown seaweeds. Male herring cale are a deep blue-black colour, and females and juveniles are golden brown with blocks of darker brown on the top side. Juvenile and female cale are well camouflaged in the kelp plants through which they swim. This vegetarian species eats the blades and growing tips of brown seaweeds such as *Ecklonia*, *Cystophora* and *Sargassum*.

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Rainbow cale *Heteroscarus acroptilus*

Often present on shallow reefs and in seagrass beds but hard to see, especially the mottled greenish-brown and reddish-brown females and juveniles. The males have two large spines and a dark checked pattern along the sides of the body. The base colour in males is variable and bright, commonly shades of blue, green and orange. Rainbow cale have beak-like fused teeth, which enable them to eat marine snails.

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Mosaic leatherjacket *Eubalichthys mosaicus*

Growing up to 60cm long, this species occurs across southern Australia. Juveniles have a rounder body and brighter colours than adults, and are found closer to shore. Juvenile colouring and patterning is typically a regular arrangement of orange or yellow patches, separated by a blue or mauve network of lines. They are often seen picking around shallow reefs, searching for invertebrate food.

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Horseshoe leatherjacket *Meuschenia hippocrepis*

Found on shallow reefs across southern Australia. The horseshoe-shaped mark on the body is most obvious in large males. Young juveniles have a pale pink body with blotches. This fish grows to more than 60cm but is rarely seen at that large size. Horseshoe leatherjackets feed on marine invertebrates by picking at the reef surface. They are curious and will often follow divers or snorkellers, but if threatened they retreat into caves or under ledges.

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Other leatherjackets such as Six-spine
Meuschenia freycineti

There are several different kinds of leatherjacket fishes which are common in South Australia, found in shallow reef areas and around jetties. Males and females of each species differ in colour and patterns. These fish have a large spine behind the head with a small spine behind it to help the large spine stay upright when needed or flatten down into a groove on the leatherjacket's back. The small mouth has sharp beak-like teeth adapted for nibbling on invertebrates.

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Blue-throated wrasse *Notolabrus tetricus*

A large wrasse to about 50cm long found on reefs in south-eastern Australia. Juveniles and small females are commonly seen in shallow weedy areas and the large males usually live on deeper rocky reefs. Younger wrasse and females are olive green and red-brown colour with patches of white and a dark band along the side of the body. Males have a large round head and a dark bluish-grey body with a bright white band in the middle.

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Purple wrasse *Notolabrus fucicola*

A greyish-blue or purple-brown reef fish with white or yellow blotches on top. Purple wrasse are found across south-eastern Australia and New Zealand, especially on rough-water reefs with kelp and other large brown seaweeds. They eat crabs, smaller crustaceans and shellfish.

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Senator wrasse *Pictilabrus laticlavius*

Found in kelp and other seaweeds on reefs across southern Australia. All senator wrasse are born as females and have a reddish-brown body with small spots. Over time, some females turn into males, which are bright green with crimson or purple stripes along the side.

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Castelnau's wrasse *Dotalabrus aurantiacus*

A small wrasse rarely more than 10cm long. Juveniles and females are usually pale pinkish or creamy tan colour with dark brown or black broken bars and spots. They also have a dark eyespot on the end of the top and bottom fins. Males differ in colour and may be reddish-brown, yellowish-brown, bright green or orange. They have dark bands on the body which are more distinctive than those on females. This wrasse has a peculiar habit of bobbing up and down as it swims near and through seaweed.

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Western Australian salmon *Arripis truttaceus*

Salmon are found along the coast from Western Australia to Tasmania. They are a powerful moderate-sized fish (up to one metre) that form large schools of thousands of individuals, and will feed by herding smaller fish to the surface. The adults migrate to southwest Australia to spawn. Eggs and larvae travel on currents along southern Australia to protected nursery grounds, such as estuaries and bays where they grow into adults.

© WA Museum



Sharp-nose weed whiting *Siphonognathus caninis*

A colourful fish which grows to around 12cm long. Juveniles and females are red, green or brown with a pearly strip along the side, and males are orange to green with horizontal blue lines. Males also have a black spot on the top fin and a black patch under the rear of the body during breeding season. The sharp-nose weed whiting is found across southern Australia, mainly around red and brown seaweeds on reefs in rough water areas but has been recorded in seagrass.

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Pencil weed whiting *Siphonognathus beddomei*

A small slender species of weed whiting, with a long pointed snout. This species is found in seagrass beds and over reefs, mainly around beds of kelp and other brown seaweeds. Male pencil weed whiting have a golden body with blue stripes, which are more obvious during the breeding season. The juveniles and females have a prominent eye spot on top of the tail.

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Blue weed whiting / Blue rock whiting

Haletta semifasciata

Found on sheltered reefs and in seagrass beds across southern Australia and is one of the larger weed whiting species growing to more than 30cm. Males are a bluish colour and females and juveniles are greenish with a silver stripe. This species feeds on a variety of small invertebrates such as worms, sea snails, crabs and other small crustaceans as well as algae.

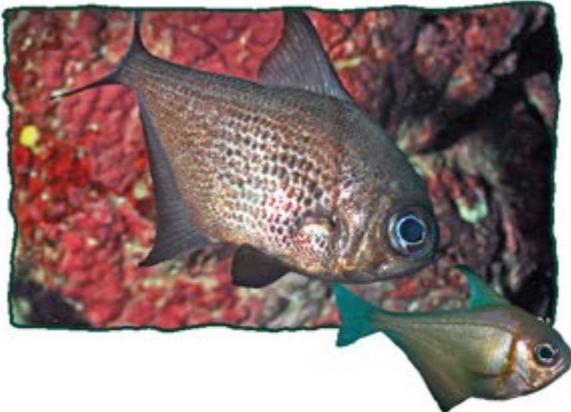
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Magpie perch *Pseudogoniistius nigripes*

A common reef fish across southern Australia. Magpie perch have thick rubbery lips similar to other members of the morwong family. There are two dark stripes on the body which can rapidly change colour by lightening the black bands to pale grey. Magpie perch feed on the sea floor or on rock surfaces. They suck up a mouthful of sediment, extract the small invertebrates and then expel the sediment rapidly to form small clouds of sand in the water.

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Bigscale bullseye *Pempheris multiradiata* and Rough bullseye *Pempheris klunzingeri*.

Bullseye are small fish which have large eyes used for hunting plankton at night in the water. There are several species in South Australia, and bigscale and rough are the two most common species seen in shallow waters. Bullseye fishes are sometimes found in groups around the entrance to caves or under ledges. Juvenile bigscale bullseyes have bright yellow fins with black tips under the body. The adults are a bronze-grey colour.

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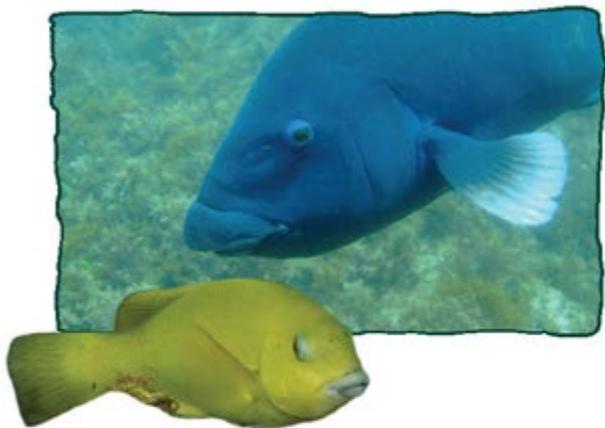


Yellowhead hulafish / Noarlunga hulafish

Trachinops noarlungae

A small schooling fish species found in Western Australia and South Australia. These fishes are usually seen under ledges or near the entrance to caves on shallow reefs, and sometimes aggregate in the hundreds. Although this species grows to 15cm, most individuals are less than 10cm long. The yellowhead hulafish is bright yellow towards the tail and many individuals also have a yellow head. Hulafish are so-named for their sinuous side-to-side body movements, like a Hawaiian hula dancer.

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Western blue groper *Achoerodus gouldii*

The western blue groper is a large and long-lived fish, which grows to around 1.6m long and can live to around 70 years in unfished areas. Young juveniles are light yellow-brown, and older juveniles and females are greenish and males are blue. All fish are born female and some change sex over time. Juveniles are sometimes seen around shallow bays of north-eastern Kangaroo Island. The adults are mainly found in deeper waters, including reefs off headlands.

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Globefish / Slender-spined porcupine fish *Diodon nictemerus*

These fishes can protect themselves in several ways – when threatened, a globefish can inflate its body to become ballshaped so that the spines stick out all over. It also has fused teeth in the beak-like mouth which can bite hard. As with other members of the porcupine fish family, they can be poisonous to eat.

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Southern sea carp / Marblefish *Aplodactylus arctidens*

A dark greenish-grey fish with blotchy patterns which occurs on reefs in south-eastern Australia and New Zealand. The Southern sea carp is a large fish, although rarely seen at the maximum size of 65cm. This fish eats seaweeds and also small invertebrates living in the seaweed.

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Shaw's cowfish *Aracana aurita* Ornate cowfish *Aracana ornata*

Cowfishes have a bony case around the body made up of six-sided connected plates. Both Shaw's and ornate cowfish are found in the gulf region. Male cowfish have blue and yellow patterns and females have orange, black and white patterns. Cowfish eat small invertebrates on the sea floor, and can blow a jet of water onto the sediment to help them capture their food.

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Sea sweep *Scorpiis aequipinnis*

An abundant silver-grey fish often found in groups around shallow reefs and jetties. Juveniles have a diamond-shaped body. They are curious and often follow snorkellers when they are swimming. The largest adults, which grow up to 56cm long are not usually seen in shallow water. Sea sweep have a small mouth and they feed on tiny plankton in the water.

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Common weedfish *Heteroclinus perspicillatus*

A small weedfish which is abundant on intertidal and shallow subtidal reefs in south-eastern Australia. Found in a variety of shallow habitats, it can change colour when moving between rocks, sand and seaweed to assist camouflage. Common weedfishes are eaten by juvenile Australian salmon and also by flatheads. There are other well-camouflaged weedfish species in shallow reef areas, but most are rarely seen.

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Blue-spotted goatfish / Red mullet

Upeneichthys vlamingii

This species is commonly seen on the sand or rubble near reefs. Juveniles sometimes form schools in sheltered bays. Goatfishes have sensory barbels under the chin which help them locate food under the sand on the seafloor. This species can change colour from silver with a black stripe during the day, to bright pink-red at night.

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Threefins / triplefins

such as crested threefin *Trinorfolkia cristata* and black-throated threefin *Helcogramma decurrens*

These small fishes grow to about 7cm or smaller. Threefins are so-named for the three fins on top of the body. They dart around reefs and jetty piles and are often hard to see on reef surfaces with pink coralline algae and sponges. The black-throated threefin is found in Western Australia and South Australia, and the crested threefin mainly in South Australia. The well-camouflaged female black-throated threefin is mottled pink and brown whereas the male is bright yellow on top and black underneath. The crested threefin is pink and grey or gold-brown, often with a pale bar beneath the eye, and has a brown and white banded fin behind the head.

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Sharks and Rays



Port Jackson shark *Heterodontus portusjacksoni*

Port Jackson sharks are found on reefs across southern Australia. They are usually seen when less than one metre long but can grow to 1.65 metres. Port Jackson sharks rest in caves and under ledges during the day and search for food at night. Main food items include sea urchins, crabs, molluscs and small fishes. These sharks migrate regularly and aggregate for breeding. Females produce brown spiral egg cases which can become lodged in rock crevices. The egg cases are sometimes washed up on beaches or in rock pools.

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Cobbler wobbegong / cobbler carpetshark *Sutorectus tentaculatus*

Smallest of the three wobbegong species in South Australia, the cobbler wobbegong grows to less than one metre long. It is sometimes seen laying in seagrass in shallow waters but is also found near coastal rocky reefs. This wobbegong appears to be more common in Western Australia than in South Australia.

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Southern eagle ray *Myliobatis tenuicaudatus*

A wide ray which grows to 1.6 metres across. The body has a pattern of greyish-blue blotches on a darker greenish-brown surface. This ray is found near reefs and in seagrass beds, also under jetties and on bare sand in shallow water. Eagle rays have flat plate-like teeth for crushing crabs and shells. Female eagle rays produce about six pups at a time during summer.

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Southern fiddler ray / banjo ray *Trygonorrhina dumerilii*

A light yellowish-brown ray with brown and white lines across the body. Southern fiddler rays grow to about 1.5 metres. This ray is found on shallow sandy bottoms, in and near seagrasses and near reefs and jetties. Juveniles feed on small prawns and shrimps, and adults eat crabs, small fishes and worms. Females produce around six pups at a time in autumn.

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Smooth stingray *Bathytoshia brevicaudata*

The smooth stingray is found around Australia, New Zealand, South Africa and associated islands. This large stingray grows up to four metres long including the tail and two metres wide, but is usually seen at smaller sizes. It lives in various habitats including sandy bottoms in bays and estuaries, jetty areas, and near coastal reefs. Smooth stingrays eat shells (including abalone), crabs, lobsters, squid and small fishes. Females produce two to six pups at a time.

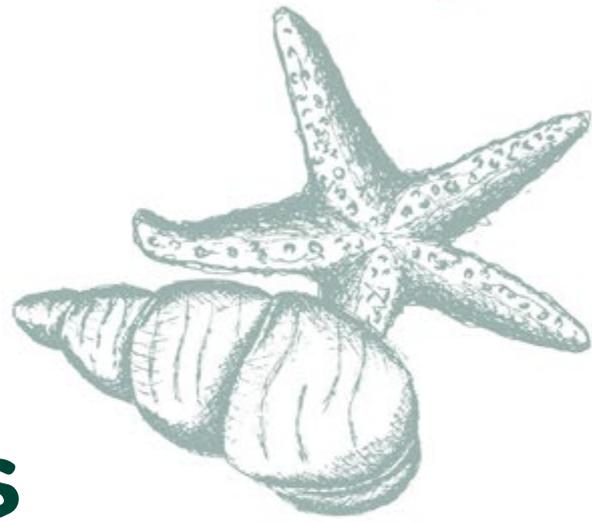
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White shark *Carcharodon carcharias*

This ocean wanderer can travel up to 80 kilometres a day. Tagging studies suggest that individuals spotted off South Australia are also using the waters around Tasmania and Western Australia. An incredible predator, the white shark enjoys a varied diet which includes fish, rays, sea lions, seals and small whales. Their hunting prowess is partly down to speed (they can swim up to 60 kilometres per hour). They're known to gather around Neptune Island and likely feed on resident long-nosed fur seals. Cage diving tours provide the opportunity to witness this rare and elusive fish.

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Invertebrates

Thousands of invertebrate species have been found in South Australian waters and more are still being discovered every year.



Shell grit anemones *Oulactis* species

There are several species of *Oulactis* anemones across southern Australia. These anemones are commonly found on and under rocks in sand in shallow subtidal reef areas. The tentacles and column (body) are sometimes greenish coloured due to tiny photosynthetic algae living inside. Small pieces of rock, shell or sand are often stuck on and between the tentacles which gives the shell grit anemone its common name.

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White-striped anemone *Anthothoe albocincta*

An anemone from south-eastern Australia and New Zealand which is common on jetty piles and shallow reefs. The feeding area (oral surface) is orange, surrounded by white tentacles, and the striped column (body) underneath is attached to the rock or jetty surface. When disturbed, this anemone releases sticky white stinging threads.

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Zoanthus robustus

A colonial anemone (zoanthid) found on shallow reefs mainly in South Australia and Victoria. The animals have a greenish-brown colour due to the presence of algae. This species can make its own food with the aid of its photosynthetic algae during the day, and open its tentacles to feed on plankton at night.

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Southern anemone *Phlyctenanthus australis*

This species lives attached to reef surfaces in shallow waters in south-eastern Australia. It has about 100 red tentacles and the column (body), which is often bright purple-pink at the base, is also covered with grey-blue bubble-shaped vesicles. It can live for more than 15 years.

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Cartrut shell *Dicathais orbita*

A shell up to 10cm long, abundant on shallow reefs across southern Australia. The cartrut shell is a predator which helps to control populations of other shells on rock surfaces. This species is long-lived to around 20 years.

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Australian tulip shell *Pleuroploca australasia*

A large snail to 15cm long with a dark brown shell. The soft animal inside the shell is dark red. It is found over a broad depth range on reefs, especially in south-eastern Australia. Tulip shells hunt at night, feeding on other shells and on ascidians (sea squirts). They also scavenge dead animals on the seafloor.

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Pheasant shell / painted lady

Phasianella australis and *P. ventricosa*

Two herbivorous snail species found on seagrass and brown seaweeds. Both are highly variable in pattern and colour. Shell shades of brown, gold, cream, pink and maroon are common. *Phasianella australis* grows to about 10cm long and is more common than *P. ventricosa* which grows to 5cm long.

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Kelp shells *Phasianotrochus* species

Small shells up to 4mm, which live on *Ecklonia* kelp and other brown seaweeds or on seagrass. These shells graze on the algae which grow on surfaces of the kelp or seagrass. Kelp shells have long been used by Aboriginal People to make necklaces.

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Conical top shell *Thalotia conica*

Small reddish-brown shells around 3mm with a beaded pattern on the surface. This species is found on both seagrasses and seaweeds. In wave-sheltered areas, the shell is covered with fine filamentous algae or tiny stalked invertebrates (hydroids).

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Checked periwinkles *Austrocochlea* species

Most periwinkles and top shells in South Australia occur in the intertidal zone, but a few species are also found amongst seaweed and on rocks on shallow reefs. Checked periwinkles have a smooth dark shell with a regular checkerboard pattern of yellow or cream spots. These periwinkles graze on algae.

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Warrener or turban shell *Turbo undulata*

Round, edible snails which have a dark green and white zig-zag pattern on the shell, often masked by a thin transparent brown coating. Turban shells are found in large numbers on many reefs, and are significant predators of kelp and other seaweeds.

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Elephant snail / boat shell *Scutus antipodes*

This snail grows to around 13cm. The white shell is often covered by the black body known as the mantle. It lives under rocks and in crevices, and emerges at night to graze on seaweed. It can also catch floating seaweed in areas of strong current. Evidence of *Scutus* shells in Aboriginal middens indicates that this species was an Aboriginal food source.

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Anemone cone *Conus anemone*

Anemone cones are mainly found in tropical waters. The New Holland cone is one of the very few cone species which occurs in southern Australia. This shell grows to around 10cm long but is often smaller. The shell colour is highly variable over the geographic range and may be white, cream, grey, brown, pink or golden orange, with darker patches or bands. Anemone cones usually hide under rocks during the day and emerge at night to catch worms using a harpoon-like structure which is connected to venom sacs.

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Black cowry *Zoila thersites* / *Zoila friendii thersites*

A distinctive cowry with a dark brown or black shell edge in adults and brown mottling over the surface. These cowries live on and eat a variety of sponges. Juveniles are orange and often well camouflaged. Black cowries are long lived to at least 12 years, and females brood their eggs until they hatch. The shell populations have been depleted in some areas of South Australia from over-collecting but inaccessible reefs, such as some of those around Kangaroo Island, provide a refuge.

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Abalone such as blacklip abalone *Haliotis rubra* and greenlip abalone *H. laevigata*

Abalone are flat shells with holes along the side to assist breathing. The inside of the shell has a pearly lining. These animals have a large muscular foot which helps the abalone to clamp tightly to rocks so that they are not dislodged by water movement or predators.

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Velvet sea star / cushion sea star

Petricia vernicina

A soft sea star with broad arms and smooth spongy skin. The velvet sea star is found on rocky reefs across southern and eastern Australia, especially on moderately wave-exposed sites. It feeds on a variety of encrusting animals on the reef surface, such as sponges, sea squirts and bryozoans.

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Five-armed sea stars *Nectria* species, *Pentagonaster dubeni*, *Uniophora granifera*, and several others

Various species of five-armed sea stars are commonly seen on shallow reefs in South Australia. Most are orange or red on the top side. In sea stars, the mouth is on the underside facing the reef surface. The stomach can be pushed out of the mouth to help sea stars feed on their prey. Sea stars have small tube feet which can emerge from a groove in each arm. The tube feet help the sea star move around.

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Eight-armed cushion star *Meridiastra calcar* Common sea star *Meridiastra gunnii*

The eight-armed sea star is variable in colour and can rarely have six, seven or nine arms. This species lives on reefs across southern, south-eastern and eastern Australia, and is often found in rock pools or under rocks. Even within one rock pool, individuals may have different body colours and patterns. The eight-armed sea star eats many different plant and animal foods and is described as an omnivore. The common six-armed sea star is a dark red-brown colour. It raises its body to eat both plants and small animals which drift past and can be abundant in some areas where food is plentiful.

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Eleven-armed sea star *Coscinasterias muricata*

A large blue-grey and orange sea star up to 50cm across, found over a broad depth range from the shore to about 150 metres deep. This sea star commonly has 11 arms, but arm number can range from 7 to 14. It will drop arms if stressed, and then regrow them, a whole sea star can regrow from one arm. This predatory species eats various molluscs, including mussels, scallops and abalone. It also scavenges dead animals on the sea floor.

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Biscuit sea star *Tosia australis*

A common five-sided sea star with short arms found on shallow reefs across southern Australia. These sea stars occur in many different colours (e.g. cream, yellow, orange, red, brown, pink, purple) and patterns (such as stars, spots, bands). A single colour over the whole body is rare. Biscuit sea stars eat sponges and other attached animals on the reef.

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Orange feather sea star *Cenolia trichoptera*

This is the largest and most commonly seen feather sea star on shallow reefs. Individuals vary in colour, but orange, brown, red or yellow are common colours. Usually only the extended feeding arms are visible and the body (central disc) is hidden in a reef crevice.

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Schayer's brittle sea star *Ophionereis schayeri*

A striped brittle star with snake-like arms which can grow to 15cm long. Abundant under rocks in shallow subtidal reefs and also found in deep water. This brittle star moves by flexing its long arms. If an arm is attacked by a fish or crab and is removed, the brittle star can regrow another one.

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Pored sea urchin *Holopneustes porosissimus*

This sea urchin is covered with bright red spines and is often found wrapped up in kelp fronds on shallow reefs. Growing to about 8cm, this sea urchin has many purple tube feet which help it adhere to surfaces and move around when needed. There is a beak-like structure in the mouth, which it uses to graze on micro-algae.

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Purple sea urchin *Heliocidaris erythrogramma*

A common sea urchin found on reef, rubble and other hard surfaces in coastal waters across the southern half of Australia. Purple sea urchins are sometimes seen clustering under ledges. Dense aggregations of these urchins can feed and strip the seaweed cover from patches of reef.

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Egg urchin *Amblypneustes* species

There are several short-spined egg urchin species which live in seaweed and seagrass in South Australia. These urchins can use their long tube feet to wrap seaweed or seagrass around the body as a form of camouflage. They feed on algae.

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Slate pencil urchins *Phyllacanthus tubaria* and *Goniocidaris irregularis*

These urchins have thick blunt spines around the body (which are called tests) and smaller spines at the base of the main spines. *Phyllacanthus* is found mainly in crevices on reefs and *Goniocidaris* urchins are found on reefs, rubble and rock walls over a broad depth range. Slate pencil urchins feed on encrusting invertebrates and also scavenge dead and dying animals.

© Department for Environment and Water



Colonial ascidians

The tiny animals (zooids) in ascidian colonies live together in groups. In large colonial species, the zooids are joined at the base but each animal is visible, whereas in compound ascidians the zooids are completely embedded in a jelly-like base called the matrix. The matrix is attached to hard surfaces such as reefs and jetty piles. In many species, the zooids have connections between them, and also expel their waste through large circular openings (cloaca) in the matrix. There are many ascidian species on shallow reefs in South Australia, especially under ledges and in other shaded areas.

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Solitary ascidians (sea squirts) such as lumpy sea tulip *Pyura gibbosa*

Sea tulips have a long stalk and a rounded head with two openings called siphons. One siphon takes in water and extracts food. The food is filtered through a sieve-like structure inside the body. The other opening in sea tulips is directed upwards away from the feeding siphon and expels the waste water. Surprisingly, sea squirts are more closely related to fishes and other animals with backbones than to invertebrates.

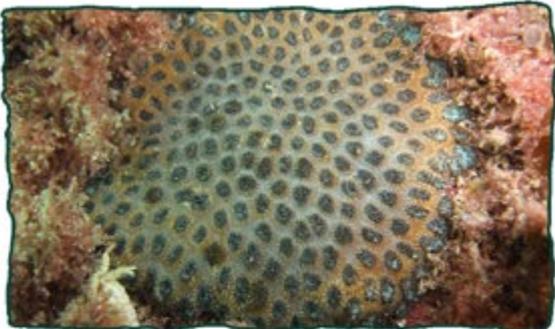
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Sponges (various species)

There are many sponge species on shallow reefs and jetty piles, especially in shaded areas with strong water movement. Sponges are simple animals which have a skeleton made up of a fibrous material called spongin, usually strengthened with glass-like spicules. Sponges pump water through pores in their structure to extract food and expel the waste water through larger holes called osculae.

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Green Coral *Plesiastrea versipora*

One of the very few hard coral species in southern Australia, green coral is a slow growing species which can form flat plate-like structures on reefs in shallow waters and larger spherical structures in deeper waters. Green coral has a hard calcareous skeleton and the soft coral polyps live inside circular pits in the skeleton. This coral can extend its tentacles at night to feed on plankton and makes its own food during the day with the aid of tiny photosynthetic algae living in the coral tissues.

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Southern rock lobster *Jasus edwardsii*

A common southern Australian and New Zealand lobster which grows up to 50cm long, although is rarely seen at that size. It is found over a broad depth range from the shallows out to the edge of the continental shelf. This species has a complex life cycle, including a swimming larval stage which travels in the plankton for one to two years before settling. The next larval stage (called a puerulus) settles on reefs looking like a miniature adult lobster.

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Red bait crab / cleft-fronted shore crab

Guinusia chabrus (*Plagusia chabrus*)

A red-orange crab with short dark maroon hair on the shell. Juveniles are a grey-brown colour. These crabs are found on shallow wave-exposed reefs, in crevices and around jetty piles across southern and eastern Australia. Red bait crabs are very fast-moving and can be aggressive. This species feeds on small animals such as hydroids, bryozoans and sponges.

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Hermit crabs *Paguristes* species

Hermit crabs protect the soft parts of their body by living in a discarded shell from another animal. They commonly use gastropod shells including empty tulip shells, spindle shells and other whelks. One of the most common species, the southern hermit crab, *Paguristes frontalis*, is found on shallow reefs and in seagrass beds across southern Australia.

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Smooth seaweed crab / goldendecorator crab

Naxia aurita

A common decorator crab which camouflages itself by sticking pieces of seagrass or seaweed to its yellow-brown shell (carapace) with the aid of hook-like hairs on the shell surface. Smooth seaweed crabs are often found under jetties and are also common in American River on Kangaroo Island. They are found from just below tide level to around 100 metres deep.

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Sea cucumber such as southern sea cucumber

Australostichopus mollis

Sea cucumbers are sausage-shaped animals with no skeleton other than tiny calcareous pieces called ossicles which strengthen the body wall. There are various species of sea cucumber on shallow reefs around South Australia. The largest is a reddish-brown or yellowish-brown sea cucumber with bumps on the body surface, and grows to around 20cm long. These animals usually remain hidden during the day and come out at night to feed on organic particles.

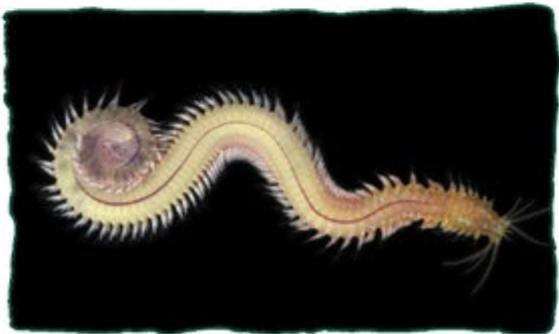
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Nudibranchs and other sea slugs such as *Ceratosoma brevicaudatum*

There are many species of sea slugs in South Australia. Most are small and hard to see when snorkelling, although a few more obvious ones grow to more than 5cm and are brightly coloured. One of the largest, the short-tailed *ceratosoma*, grows up to 15cm long. Nudibranchs are sea slugs with no shell inside and each animal is both male and female. Each type of nudibranch specialises in one kind of food such as sponges, hydroids, bryozoans or seaweed.

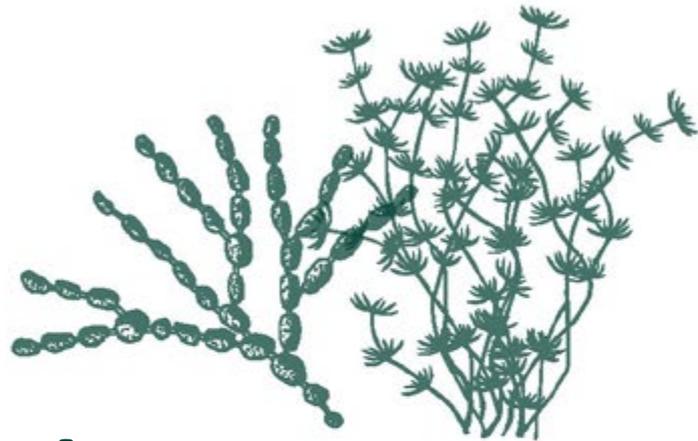
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Polychaete worms

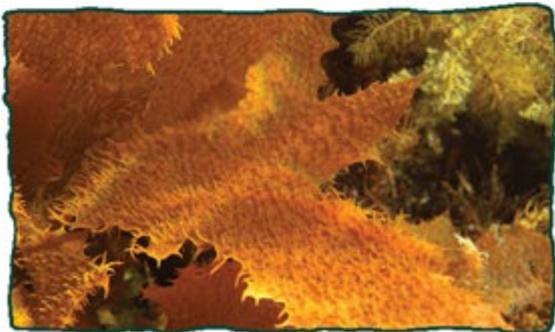
There are many kinds of segmented worms which live in shallow reefs areas, under rocks or in reef crevices. Some live buried in sand or rubble and others live in seaweed. Most are rarely seen. Some worms scavenge dead animals, others are active predators on other invertebrates, and some eat marine plants.

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Marine plants

Along our coast we have the largest mangrove stands in southern Australia, 14 types of seagrass and more than 1,500 species of seaweed that provide essential food and shelter for our marine life.



Common kelp *Ecklonia radiata*

Common kelp is a large plant (up to two metres high) found in abundance on reefs across the southern half of Australia and other temperate regions. It has a strong root-like holdfast which helps the plant to attach to reef surfaces, and a thick leathery stalk (stipe). Kelp plants often grow in groups, although in some areas they are dispersed individually amongst other marine plants. Kelp is an important habitat for some reef fishes which seek shelter in the fronds, and small invertebrates that live on and under the holdfast. Kelp is used commercially for cosmetics and for fertiliser.

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String kelp / northern giant kelp

Macrocystis angustifolia

A large seaweed, string kelp is found in cooler waters of south-eastern Australia. It grows to about 10 metres long and has air-filled floats which help the long heavy fronds stay buoyant in the water. String kelp forms an important habitat for numerous fishes, crustaceans and echinoderms in south-eastern South Australia.

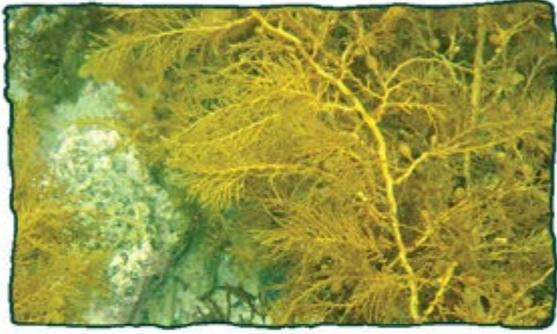
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Sargassum species

There are several common species of *Sargassum* on reefs in South Australia. The lower branches near the base of the plant are leaf-like and the finer upper branches form dense tufts. These plants have spherical vesicles to help keep the branches floating in the water. During winter, the plants die back and only the leaf-like branches at the base remain. *Sargassum* plants are home for many small invertebrates such as tiny amphipod crustaceans, worms and small snails.

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Cystophora species

There are several common species of *Cystophora* on shallow reefs in South Australia. These plants often grow to around two metres long and have zig-zag shaped branches growing off the main stem, with finer branchlets (ramuli) forming tufts along the branches. Like *Sargassum*, cystophora plants are home for many small invertebrates such as tiny crustaceans, worms and snails.

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Crayweeds / forkweeds

Scytothalia dorycarpa and *Seirococcus axillaris*

Scytothalia and *Seirococcus* are multi-branched brown seaweeds found on wave-exposed reefs. Both occur on reefs around southern Australia including reefs at the bottom of the Fleurieu, Yorke and Eyre peninsulas. *Scytothalia* also occurs in Western Australia. Both species have reproductive structures in clusters on the edges of the flat blades.

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Corkweed / wartyweed *Scaberia agardhii*

This brown seaweed is common across southern Australia, on reefs which experience moderate to strong water movement. There is only one species of corkweed known to exist. The colour varies from dark brown to light golden-brown or greenish-gold. Corkweed has short rounded wart-like branchlets growing out of the main branches.

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Grapeweed *Caulocystis* species

Caulocystis seaweeds are often found on shallow, wave-sheltered reefs. Grapeweed has a bottle-brush shape, with narrow cylindrical fronds growing off the narrow stems. The stems are joined at the base. There are two forms in South Australia: one has small ball-shaped floats to keep the plants upright in the water and the other has longer pointed floats. Intergrades between the two are common.

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Brown turfing seaweeds such as *Lobophora variegata* and *Zonaria* species

There are several species of smaller brown seaweed which commonly grow attached to rocks. Together with some of the common green and red seaweeds, they form an understory layer under the larger brown seaweeds such as *Cystophora* and *Sargassum*. The turfing brown seaweeds often have forked branches with rounded ends. A few species form flat lobed branches across rock surfaces.

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Fern caulerpa *Caulerpa flexilis*

A bright green seaweed with branches shaped like pine trees. Plants can grow to more than 30cm high, but are usually smaller. This species is common on shallow reefs in wave-exposed areas across southern Australia and New Zealand. In some areas, the fronds get worn away by wave action leaving only a mass of root-like structures (stolons) at the base from where the new branches grow.

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Brown's caulerpa *Caulerpa brownii*

One of several green *Caulerpa* seaweeds which are common on shallow reefs in South Australia. Brown's *Caulerpa* has dense short fronds (ramuli) on the branches. Plants can grow to about 40cm long, but are usually much shorter. When growing below the tide line, this *Caulerpa* can form substantial beds in some areas.

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Liverwort seaweed *Dictyosphaeria sericea*

A bright green lobe-shaped seaweed which attaches to reef surfaces using strong filaments called rhizoids. Liverwort seaweed is usually found growing in clumps on the shaded parts of reefs such as the underside of ledges and the sides of boulders. It occurs mainly in reef areas with strong wave exposure.

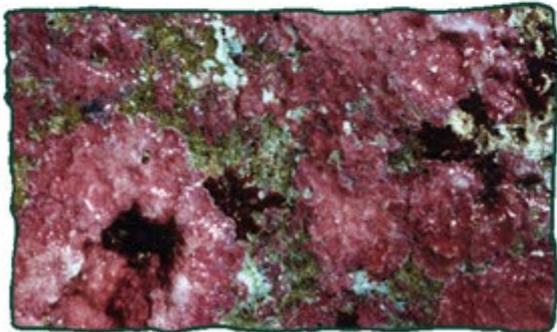
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Codium species

There are various common species of green *Codium* seaweed in South Australia. Some have long, forked branches and others are spherical, lobe shaped or flattened and sponge-like. *Codium* plants are spongy in texture. They have a core of fine filaments, and an outer layer packed with thousands of small, tubular structures called utricles.

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Encrusting coralline algae

Encrusting coralline algae are also seaweeds, with calcium carbonate in the structure, which are brittle and can break easily. Some are flat such as *Lithothamnion* and *Mesophyllum* and grow as hard pink crusts on rocks. Others are more warty and knobby, such as *Lithophyllum*, and look like pink pebbles.

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Mermaid's necklace *Chaetomorpha* species

An abundant and widespread species which is made up of chains of large transparent green cells. Mermaid's necklace is often found growing on other seaweeds or on seagrass in the intertidal area or just below low tide.

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Serrated red seaweeds / Plocamium seaweeds *Plocamium* species

Plocamium seaweeds have flat branches with regular branching patterns. The small branchlets are called ramuli and in some species they are hook-shaped white, while in other species, the branchlets have a serrated (saw-patterned) outer edge. During the reproductive season, there are small grape-like clusters at the base of the branches. Small crustaceans such as isopods commonly live in *Plocamium*. Most *Plocamium* species are found on wave-exposed reefs.

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Red grapeweed *Botryocladia sonderi*

Red grapeweed has dense grape-like clusters on branches and is found on shallow reefs across southern Australia. The bladders are filled with a gelatinous substance when the plant is young. In older branches, holes develop at the end of each bladder and they become hollow. The grape-like bladders often have encrusting red algae growing on the surface and the red colour may also be bleached out when the plants are growing in shallow waters.

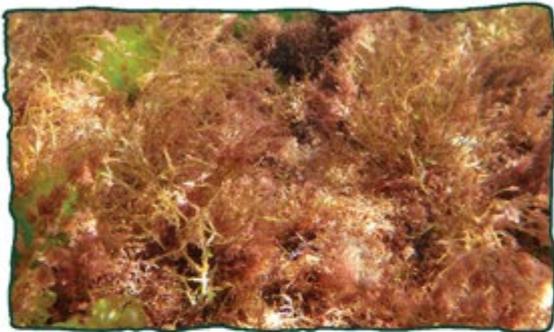
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Red strapweed *Osmundaria prolifera*

A tough leathery seaweed with twisted branches, red strapweed is abundant on shallow moderate energy reefs in Western Australia and South Australia. This species varies in colour from dark red-purple to pink and yellow according to the amount of light it receives. When out of water, the dark pigment rapidly bleaches out of this seaweed.

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Many-branched red seaweeds such as *Gracilaria*, *Gelidium*, *Laurencia*, *Wrangelia*, *Asparagopsis*, *Rhodymenia*, *Mychodia*, *Chondria* and other genera

There are many species of branched red seaweeds on shallow reefs in South Australia, and some of these grow together in groups. Some (such as *Wrangelia*) have fine fluffy branchlets which are easily damaged by wave action. Others are more robust such as species of *Laurencia* and *Chondria*. Most of these red seaweeds are less than 15cm high. Some sea slugs eat red seaweeds, and small crustaceans, worms and shells often live in the branches.

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Spiky tuftweed *Perithalia caudata*

A brown seaweed which grows to 1 metre long on rough water reefs in south-eastern Australia. Small skeleton shrimps often live in this dense seaweed. Chemicals called phenols in the seaweed are distasteful to potential predators such as sea urchins.

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Wireweed *Amphibolis* species

There are two species of the wireweed seagrass in South Australia. *Amphibolis antarctica* has short twisted leaves, and *A. griffithi* has longer straighter leaves. The tough wiry stems of uprooted plants sometimes roll together via wave action to form basket-like wireweed balls, although these are less common than other types of seagrass ball.

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Strapweed / tapeweed *Posidonia* species

Strapweed is a long strap-like seagrass which forms meadows in nearshore sand areas. Most of the world's species of *Posidonia* are found in South Australia and some of these form large meadows, especially in the gulfs and in the bays of the west coast. *Posidonia* meadows have many important ecological functions such as providing feeding and breeding grounds for many marine fishes, crustaceans and other animals; protecting the coast from erosion; and helping to keep coastal waters clean. Seasonally, the leaves are shed in storms and wash up on beaches as beach wrack.

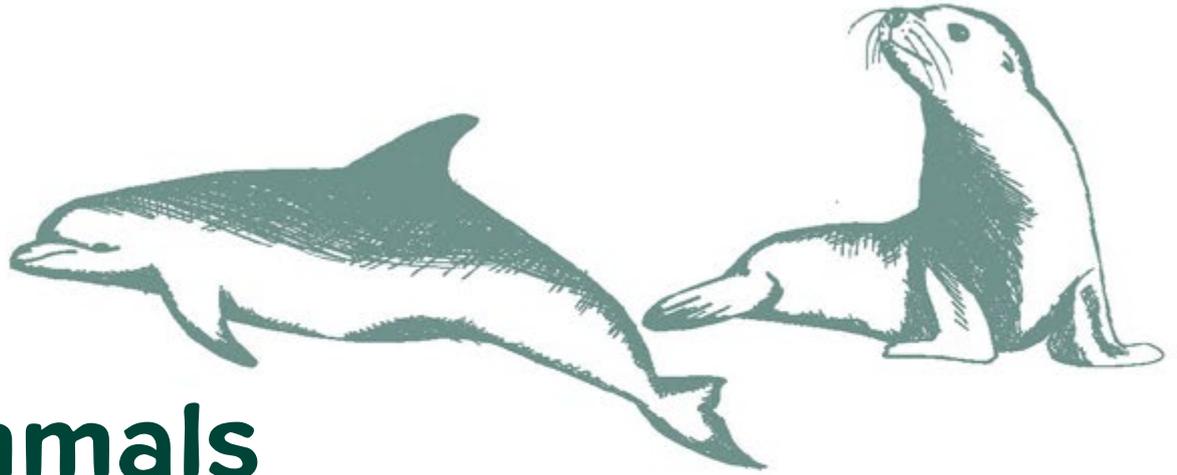
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Branched coralline algae *Cheilosporum sagittatum*

Branched coralline algae are seaweeds with calcium carbonate in the structure so they are brittle and can break easily. Some have many feather-like branches such as *Corallina officinalis* and *Haliptilon roseum*, and others have small cylindrical branches which grow upwards from the base such as *Jania* and *Metagoniolithon* species. Branched coralline algae are common on moderate to high energy reefs along the South Australian coast.

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Mammals



Long-nosed fur seal *Arctocephalus forsteri*

When they are near shore, long-nosed fur seals bask near the surface, swim around jetties or rest on rocks. Pups sometimes congregate in pods while their mothers are away feeding. Related to sea lions the long-nosed fur seal has external ears and the ability to walk on all fours. They feed on squid, octopus, fish and birds, and can dive deeper than any other fur seal, to depths more than 350 metres. Previously called the New Zealand fur seal, its name was changed due to the differences to the New Zealand population.

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Common bottlenose dolphin *Tursiops truncatus*

This species is found all around the world with populations both inshore and well out to sea. They can be seen off the coast in South Australia in pods of up to 15 individuals or more. They feed on squid and a wide variety of fishes. Dolphins search for food primarily using echolocation and groups often work as a team to capture schools of fish. Two other species of dolphin are found in South Australia, the Indo-Pacific bottlenose dolphin, which can be found in the Adelaide Dolphin Sanctuary, and the short-beaked common dolphin.

© Department for Environment and Water



Southern right whale *Eubalaena australis*

Every year these whales migrate up from colder feeding areas around Antarctica and swim along the warmer breeding grounds along the South Australian coastline. The major breeding and calving area in South Australia is at Head of Bight. Southern right whales can also be seen off the coast near Victor Harbor, where they come to give birth in protected waters. Southern right whales are baleen whales and are classified as an endangered species.

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30



View southern right whales at Head of Bight

Far West Coast Marine Park

Nuyts Archipelago Marine Park

Murat Marine Park

Dive the iconic Top Gallant Isles



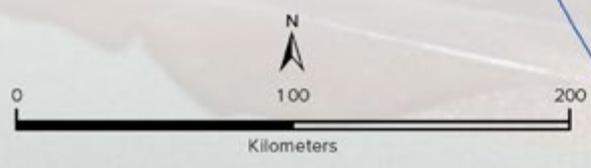
West Coast Bays Marine Park

Investigator Marine Park

Western Eyre Marine Park

Great Australian Bight Marine Park

Go shark cage diving



Key

-  SA Marine Parks – Outer boundary
-  Australian Marine Parks – outer boundary

For more details about marine parks and their zones visit marineparks.sa.gov.au and parksaustralia.gov.au/marine



Need to know where a sanctuary zone is? Download the PIRSA app, with maps and fishing information.
pirsa.gov.au/fishing/recfishingapp

Available for  iPhone  Android

Marine Parks

Swim with Australian sea lions and bottlenose dolphins

Dive with cuttlefish in this iconic location

Fish for King George whiting

Visit a resident pod of bottlenose dolphins

Immerse yourself snorkelling on Noarlunga Reef

Dive and discover leafy sea dragons

View long-nosed fur seals

Walk among a colony of Australian sea lions

Watch southern right whales from the beach



Nineteen inshore marine parks in State waters are managed by the South Australian Department for Environment and Water. Seven offshore Australian Marine Parks are managed by Parks Australia.

All plants and animals are protected in South Australian marine park sanctuary zones, and in Australian Marine Park National Park zones. These zones are no-take areas.

Remember it is also illegal to remove any bottom dwelling organisms (plants and animals) from any intertidal rocky reef, out to a depth of two metres throughout South Australia.

Useful links

South Australian National Parks information

parks.sa.gov.au

 facebook.com/nationalparkssa  [@nationalparkssa](https://instagram.com/nationalparkssa)

Australian Marine Parks information

parksaustralia.gov.au/marine

 facebook.com/ausmarineparks  [@ausmarineparks](https://instagram.com/ausmarineparks)  [@ausmarineparks](https://twitter.com/ausmarineparks)

Intertidal rocky reef information

https://pir.sa.gov.au/fishing/closures_and_aquatic_reserves/fishing_closures/intertidal_reefs



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