A Ranger's Guide to Exploring the Rocky Shores of Phillip Island

Illustrated by Cara Richardson

We acknowledge the
Traditional Custodians
of the land on which we live,
work and learn,
the Bunurong people.
We pay our respects to their
Elders past and present.

Wominjeka to Millowl

WELCOME TO PHILLIP ISLAND

Millowl (Phillip Island) is a special place for Bunurong people who have deep spiritual connections with the land and sea. Millowl's rocky shores have provided valuable resources for thousands of years with specialist knowledge guiding the collection and use of the shellfish and seaweeds lining the island's unique and geologically diverse shores.

Abalone, limpets, top shells, elephant snails, warreners, chitons and mussels are amongst the many species we find today. Evidence from several significant middens on Millowl, show that these species were mindfully gathered by Bunurong people as part of meals enjoyed along the coast.

Sustainability and consideration for future generations were ingrained into this process. Traditional harvesting of these foods is still practiced, allowing Bunurong to continue to teach their children about these important cultural connections.

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of Phillip Island

CONTENTS

Introduction

Exploring our rockpools can be like opening the door to an entirely new world. A world of beauty and wonder, with creatures with abilities we could only dream of. With this guide we invite you to come along with us on a journey of discovery of Phillip Island's rocky shores.

The guide is designed to help you identify the most common rockpool finds that you will come across on our rocky platforms.

TAKING CARE

Remember that when visiting our rocky shores you are entering the homes and habitats of many other creatures, so please respect these spaces and leave things as you found them.

Here are a few considerations before you set out to explore our rocky shores to make the visit safe for both yourself and the marine life you're heading out to enjoy.

BEFORE YOU GO

- Always check the tides before rockpooling - begin your exploration an hour before low tide. Tide guides are usually available at local surf shops. Remember it's important to be looking at the tides for the local area you are in. For Phillip Island check the tides for Port Phillip Heads (accuacy will vary according to location).
- Wear sensible shoes, sunscreen and a hat.

ON THE ROCK PLATFORM

- Keep your eyes on the waves and don't get too close to the edge.
- Do not run the surface can be very slippery.

ON THE ROCK PLATFORM (CONTINUED)

- Be aware of dangerous animals such as – blue ringed octopuses and anemone cone shells.
- If you wish to turn a rock over, for safety reasons always roll it towards yourself and turn it back to where you found it.
- Always put animals back where you found them.
- Removal of live animals is prohibited by law (except species allowed with a fishing license).

WHERE TO GO

Phillip Island hosts an array of rocky shores from one end of the island to the other. Some key destinations include:

- *Smiths Beach:* head across to the black basalt rock platform you can see to the left of the carpark area. Make sure you keep an eye on the tide as the gutter between the beach and platform can fill quickly here!
- *Cowrie Beach:* a steep walk down and at the end of the path and you will be straight onto the rock platform. Keep an eye on the swell.
- *Shelley Beach:* one of the islands National Surf Reserves you will find rockplatform areas to the right and left of the carpark. Head to the left.
- *Surf Beach:* head for Surfies Point for the largest section of rock platform at Surf Beach. Be prepared for plenty of steps.
- *Ventnor:* areas of rock platform can be found along the Ventnor beach area. Try this area on a good low tide.


WESTERN PORT
(Warnmarin)
(RAMSAR WETLAND)
Ventnor
RHYLL INLET
PHILLIP ISLAND
(Millowl)
CHURCHILL
ISLAND
MARINE
NATIONAL
PARK
Shelley
Beach
Cowrie
Beach
Smiths
Beach
Surf
Beach
PYRAMID ROCK
BASS STRAIT
CAPE WOOLAMAI

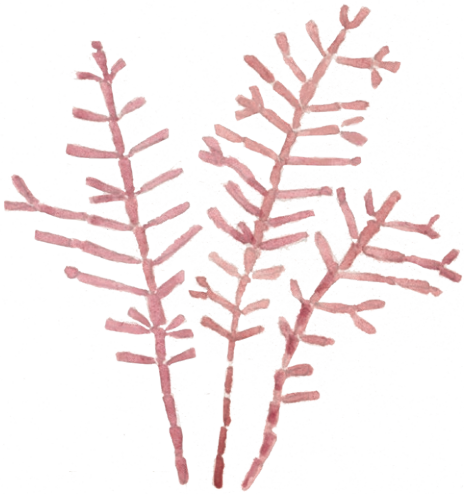
MERMAID'S NECKLACE

NEPTUNE'S NECKLACE

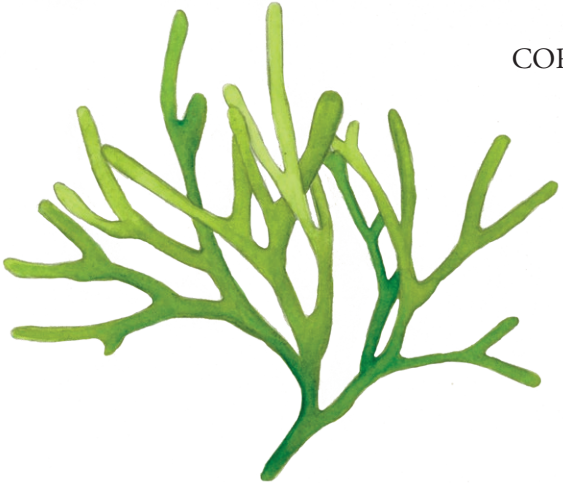
SEA LETTUCE

Quick Guide to Common Seaweeds

CODIUM



CORALLINE ALGAE



GREEN SEA VELVET

BLACK NERITE

LIMPET

BRITTLE STAR

BARNACLE

CHITON

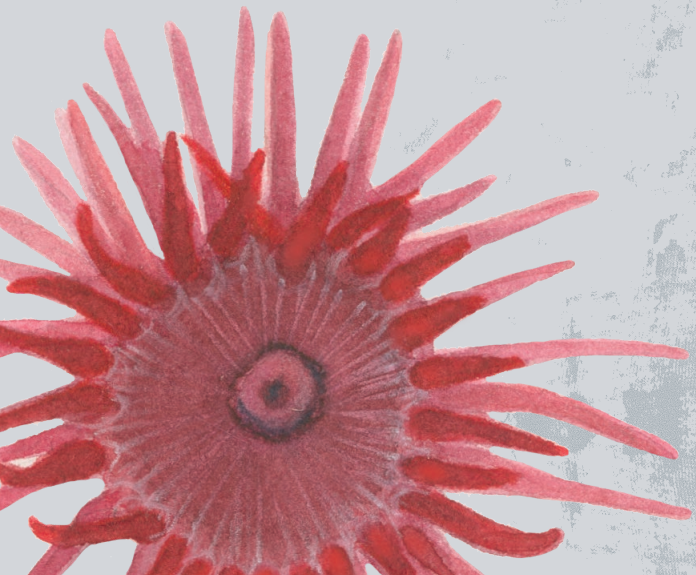
Quick Guide to Common Rockpool Finds

SMALL GREEN SEASTAR

ELEPHANT SNAIL

WARRANER

NOTCHED SHORE CRAB



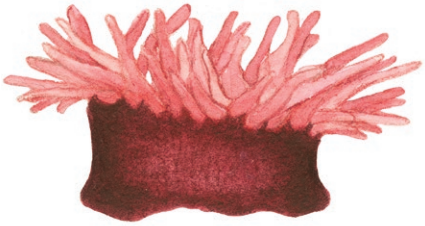
ROCKPOOL ANIMALS
Sea Anemones - (Cnidarians)

With their jewel like colours and delicate appearance, sea anemones are the flowers of the sea. They are simple animals with no organs, consisting of tissue with a central column and mouth surrounded by tentacles. But don't be fooled by their beauty, these pretty jewels of the sea come equipped with their own arsenal of harpoons.

Sea anemones belong to the phylum Cnidaria which includes hydroids and jellyfish. Their tentacles are covered in cnidocytes (stinging cells) which they use to harpoon and paralyse prey.

Whilst all sea anemones have stinging cells, only some like the orange and white striped anemone, have a toxin that affects humans.

WARATAH ANEMONE



SCIENTIFIC NAME: *Actinia tenebrosa*

OTHER NAMES: Cherry anemone, red waratah anemone

APPEARANCE: A small red-brown anemone, when exposed to air they appear like a smooth, shiny, blob of jelly.

SIZE: Diameter up to 40mm

HABITAT: Intertidal rocky shores, mid to upper intertidal zones.

DISTRIBUTION: Throughout southern Australia, also found in New Zealand

DIET: Carnivore

Did you know? The waratah anemone breathes through its thin membrane like skin. To do so they keep their skin moist with mucus, this type of breathing is known as diffusion.

ORANGE & WHITE STRIPED ANEMONE

SCIENTIFIC NAME: *Anthothoe albocincta*

OTHER NAMES: White striped anemone

APPEARANCE: An anemone with orange column with white stripes. The top mouth area is orange with numerous white tentacles.

SIZE: Column up to 20mm; diameter including tentacles 30mm

HABITAT: Under rocks and ledges in the lower intertidal & subtidal zones.

DISTRIBUTION: South-eastern Australia and New Zealand

DIET: Carnivore

Did you know? Imagine being able to make your own clone! Orange and white striped anemones can do just this. Cloning adults will split in half to make two identical anemones, they can also reproduce sexually.

BEWARE: Orange and white stripe anemones stinging cells may pack a punch! It's thought that their stinging cells may affect humans as well as the tiny sea creatures that make up their prey.

SHELL-GRIT ANEMONE

SCIENTIFIC NAME: *Oulactis muscosa*

OTHER NAMES: Speckled anemone or sand anemone

APPEARANCE: This anemone has a cream column, often buried in sand-filled cavities upon rock. It has numerous transparent grey tentacles (up to 100), often with cream blotches arranged in 3 rows. A thrill sits around the top edge of the column often catching sand and shellgrit. The oral disc appears red to a deep brown, green, black or white and you can often see darker streaks leading to the mouth or a green ring around the mouth.

SIZE: Diameter up to 80mm

HABITAT: Sheltered and moderately exposed rockpools, mid to low intertidal zone.

DISTRIBUTION: SA, Victoria, Southern Queensland, Tasmania, New Zealand

DIET: Carnivore

Did you know? Often found sitting buried beneath the sand with only its tentacles exposed, this large anemone further camouflages itself by collecting and attaching sand and shellgrit on and between its tentacles. Camouflaged they wait for passing prey, shooting out their own fishing line armed with venom. The venom stills their would be prey, allowing them to reel it back in at their own leisure. Shell-grit anemones feed on mussels that have been dislodged by waves.

BARNACLES & CRABS
(Arthropods)

On land when we think of arthropods we think of spiders and insects, but once we delve into the ocean few spiders can survive. The most common arthropods in the sea are either crabs or barnacles. Other arthropods include shrimp, crayfish, sand fleas and sea slaters.

BARNACLES

Whilst barnacles spend most of their life stuck to a rock on their back, they start their days with swimming stages as plankton. Once attached to a rock they are there permanently. They feed by opening the plates within their shells and using modified feathery legs to strain food from the water.

ROSETTE BARNACLE

SCIENTIFIC NAME: *Tetraclitella purpurescens*

OTHER NAMES: Purple four-plated barnacle or purple barnacle

APPEARANCE: The rosette barnacle is a fairly flattened white to mauve or green tinted barnacle. It is made up of 4 side plates that form a wide cone and often has a granular or scaly appearance. The opening is diamond shaped.

SIZE: Up to 30mm in diameter and 10mm high

HABITAT: Mid to high tide levels, preferring sheltered and shaded areas of our rocky shores.

DISTRIBUTION: Southern Australia up to Queensland, around Tasmania and New Zealand.

ROSETTE BARNACLE (CONTINUED)

DIET: Omnivore - Plankton and particles

Did you know? Rosette barnacles will also attach to other species and can be sometimes found growing on abalone or mussel shells.

SURF BARNACLES

SCIENTIFIC NAME: *Catomerus polymerus*

APPEARANCE: Surf barnacles are mainly white, the shell wall is made up of 8 main plates surrounded by a large number of smaller plates, decreasing in size towards the base.

SIZE: Up to 30mm diameter and 20mm high

HABITAT: Found attached to rock surfaces on exposed shores, only below mid-tide.

DISTRIBUTION: Southern Australia; Great Australian Bight, WA to upper NSW and around Tasmania

DIET: Omnivore - plankton or particles

Did you know? Surf barnacles name is very fitting, this species of barnacle preferring to live in areas exposed to high energy wave action.

CRABS

Lift up a rock in any rockpool and you are sure to see crabs dart about and run for cover. With their four pairs of legs placed too close to walk forward, crabs have become masters of the sideways shuffle. The pointed tips of their feet allow them to hold on, as waves crash through.

Crabs are the cleaners of the rockpool. Whilst some species will eat live algae and shellfish meals, all crabs will clean up the remains of decaying matter acting as scavengers.

NOTCHED SHORE CRAB

SCIENTIFIC NAME:
Paragrapsus quadridentatus

OTHER NAMES: Four-toothed shore crab

APPEARANCE: A sandy brown coloured body with dark brown and black speckles and a flattened shell with a single notch along each side.

SIZE: Up to 3cm wide (carapace - main body)

HABITAT: Rocky shores and mudflats

DISTRIBUTION: SA, Vic, Tas

DIET: Omnivore - Dead fish and rotting seaweed

Did you know? The notched shore crab can survive for several hours out of the water, allowing them to live above the low-tide level within the splash zone. Like other crabs, they moult once their shell grows too small. They do this by swelling their body with water so they can break out the back, forming an entire new shell in the process. Whilst moulting they can even replace missing legs or nippers!

HAIRY STONE CRAB

SCIENTIFIC NAME: *Lomis hirta*

APPEARANCE: A flattened grey-brown body, covered with hairs, their claws flat and wide. Their antennae stand out a brilliant blue.

SIZE: Up to 2cm

HABITAT: Under rocks on exposed rocky reefs

HAIRY STONE CRAB (CONTINUED)

DISTRIBUTION: Southern Australia

DIET: Carnivore - plankton

Did you know? The hairy stone crab is not a 'true' crab, but instead it is related to hermit crabs. This distinction can be made by its three pairs of walking legs rather than the four typically seen in crabs.

DECORATOR CRAB

SCIENTIFIC NAME:
Microhalimus deflexifrons

APPEARANCE: Pear shaped carapace, narrowing towards the front with small spines.

SIZE: 15mm

HABITAT: Subtidal

DISTRIBUTION: Native to Australia

DIET: Organic matter

Did you know? Decorator crabs are the masters of camouflage, picking seaweed and sponges which are then placed upon hooked hairs on their bodies. Once placed the seaweed and sponges will continue to grow.

SHELLFISH & OCTOPUS
(Molluscs)

Molluscs are among our most often observed creatures of our rockplatforms, the term mollusca meaning soft bodied. Whilst most of the molluscs we see on our rockpool exploration will be snail like shellfish, this group also includes chitons, bivalves, squid and octopus.

Most of these creatures have a shell they can hide in, except for octopus and squid that have an internal shell instead.

ELEPHANT SNAIL

SCIENTIFIC NAME: *Scutus antipodes*

OTHER NAMES: Duckbill or Roman shield

APPEARANCE: White shell surrounded by black fleshy foot and mantle (mantle will at times cover shell). Two black tentacles on the head which sway side to side as they move along.

SIZE: Shell up to 100mm

HABITAT: Reef, in crevices and under boulders. Lower shore.

DISTRIBUTION: Southern Australia and New Zealand

DIET: Herbivore - algae

Did you know? Elephant snails are the largest of Australia's false limpets. Hidden during the day they come out at night to feed. They hide their shell with their velvety black skin when exposed, rather than hiding within their shell as most other molluscs do.

VARIEGATED LIMPET

SCIENTIFIC NAME: *Cellana tramoserica*

OTHER NAMES: Common limpet

APPEARANCE: Oval rising into a rounded cone. The apex is not quite central and the head end is narrower. There are 36 radial ribs around the shell. The colour varies widely; with the most common colours are greyish white with orange and brown markings.

SIZE: Up to 50mm

HABITAT: Exposed rocks at all tide levels

DISTRIBUTION: South-eastern Australia; Great Australian Bight, WA, to southern Qld and north-eastern Tasmania

DIET: Herbivore - micro algae

Did you know? Limpets each have their own distinct home spot, shaped to the unique shape of their shell. They return to their home spot at low tide allowing them to trap water in and avoid drying out.

TALL RIBBED LIMPET

SCIENTIFIC NAME: *Patelloida alticostata*

OTHER NAMES: Ribbed limpet

APPEARANCE: The tall ribbed limpet has an oval shape and a pointed cone, with distinct ribs. Usually there will be 18 ribs which are distinct near the base. In more sheltered areas they may appear more flattened. They have a whitish colour with spaces between ribs marked with black cross-lines.

TALL RIBBED LIMPET (CONTINUED)

SIZE: Up to 40mm

HABITAT: Rocky shores; mid to low tide level

DISTRIBUTION: WA around to NSW

DIET: Herbivore - macro algae

Did you know? The limpet has a tongue like structure going back into its oesophagus called a radula that allows it to scrape algae off rocks and hard surfaces. The radula is like a toothed ribbon, with the teeth in various stages of development as you move along it. As one bit wears away another bit is ready to replace it!

FALSE LIMPET

SCIENTIFIC NAME: *Siphonaria diemenensis*

OTHER NAMES: Van Diemen's Land False Limpet

APPEARANCE: Conical shell, with ridges radiating from the centre

SIZE: Up to 30mm

HABITAT: Exposed rocks

DISTRIBUTION: Southern Australia

DIET: Herbivore

Did you know? False limpets are quite different to the rest of the limpets in that they are air breathing. During high tides they will trap air under their shell so they can continue to breathe. They belong to the group known as pulmonates.

CHITON

SCIENTIFIC NAME: *Ischnochiton spp.*

OTHER NAMES: Coat-of-mail shell

APPEARANCE: Chitons have an elongated oval shaped shell made up of 8 interlocking plates, surrounded by a muscular skin girdle. On the underside you find a strong muscular foot. There are 20 species of *Ischnochiton* found in Australia. Distinctive to the ischnochitonid chitons is that the tail plate is the longest. The most common chitons in southern Australia are *Ishnochiton australis,* distinguishable by its blue-green colouring.

SIZE: Some species up to 80mm

HABITAT: Underside of rocks near low tide level

DISTRIBUTION: Southern Australia

DIET: Mostly herbivores feeding on algae, some species may also feed on encrusting invertebrates.

Did you know? Chitons are a diverse group with over 30 species found in Victoria. Some types of chitons are covered with 'eye spots'. These eye spots are miniature light detectors covering the chitons shell. These eye like organs even have a lens, retina and optic nerve.

RIBBED TOP SHELL

SCIENTIFIC NAME: *Austrocochlea constricta*

OTHER NAMES: Perriwinkle

APPEARANCE: A medium sized marine snail. They are grey or off white in colour and have five or six ribs spiralling up towards a pointed tip.

RIBBED TOP SHELL (CONTINUED)

SIZE: Up to 25mm diameter; 25mm height

HABITAT: Abundant in the mid to upper intertidal zone on sheltered to mildly exposed rocky shores.

DISTRIBUTION: NSW through to WA and Tas

DIET: Herbivore - algae

Did you know? Top shells carry their own doorway. The top shell has a thin brown door (operculum) that it closes over when it withdraws its body, providing protection from drying out at low tide and from predation.

WARRENER

SCIENTIFIC NAME: *Turbo undulata*

OTHER NAMES: Wavy turbo or turban shell

APPEARANCE: The warrener has a rounded snail shaped shell with blue-green wavy markings on a whitish shell.

SIZE: Up to 50mm high

HABITAT: Common in rockpool crevices and under rocks at and below the mid-tide level.

DISTRIBUTION: Southern WA around to southern Queensland and Tasmania

DIET: Herbivore - algae

Did you know? Warreners are often considered one of the tastiest sea snails, favoured by birds, fish and humans alike. Warreners are commercially harvested in Tasmania. Warreners themselves are significant predators of some seaweeds and kelps.

BLACK NERITE

SCIENTIFIC NAME: *Nerita spp.*

OTHER NAMES: Black crow

APPEARANCE: Black nerites are a small black coloured sea snail. The inside is white with a D shaped opening and a black (eastern variety) or orange and black (western variety) operculum/doorway.

SIZE: Up to 30mm

HABITAT: High to mid tide level

DISTRIBUTION: WA through to Queensland. Two varieties are found on Victoria's coast, they are often found in clusters under rocks.

DIET: Herbivore - microalgae

Did you know? Often exposed by high tides nerites are usually found in dense clusters. These clusters allow them to trap moisture between them. This closeness also helps in reproduction.

STRIPED CONNIWINK

SCIENTIFIC NAME: *Bembicium nanum*

OTHER NAMES: Striped-mouth conniwink

APPEARANCE: Wider than they are high, the striped conniwink has a greyish-white cone shaped shell with dark brown stripes on the outer edge.

SIZE: Up to 22mm wide

STRIPED CONNIWINK (CONTINUED)

HABITAT: Mid to high tide level/upper intertidal zone on exposed rock platforms

DISTRIBUTION: South western WA to southern Queensland and Tasmania/ southern Australia

DIET: Herbivore - micro algae

Did you know? Like other shellfish conniwinks lay eggs. Their eggs are laid in small bean shaped masses containing 100-200 eggs. After hatching they have a period as plankton before settling and metamorphosing into a cone shaped sea shell.

LITTLE BLUE PERIWINKLES

SCIENTIFIC NAME:
Austrolittorina unifasciata

OTHER NAMES: Blue australwink; banded periwinkle

APPEARANCE: This small mollusc has a smooth, pale blue-grey shell with brown tip.

SIZE: Up to 16mm height

HABITAT: Above high tide level on exposed reef and cliff faces

DISTRIBUTION: Western and southern Australia, Tasmania and New Zealand

DIET: Herbivore - primarily lichens

Did you know? Periwinkles are one of the most common shellfish along our coastline. In some places they are so dense that there will be up to 1000 in just one square metre.

CHECKERBOARD SHELL

SCIENTIFIC NAME: *Cominella lineolata*

OTHER NAMES: Lineolated cominella or spotted cominella

APPEARANCE: Shell smooth or slightly dimpled, whilst the pattern can vary it often appears as a checkerboard pattern. The shell is whitish cream with dark brown markings.

SIZE: Up to 35mm long (39mm high)

HABITAT: Sandflats and sheltered rockpools on shores of strong to moderate wave exposure, at any level within the intertidal zone.

DISTRIBUTION: WA around to NSW & Tasmania

DIET: Omnivore - plant and animal matter

Did you know? The checkerboard shell lays masses of tulip shaped eggs. Look out for them when beachcombing. When they hatch they are mini versions of the adult animals.

DOG WINKLE

SCIENTIFIC NAME: *Dicathais orbita*

OTHER NAMES: Dog whelk or cart-rut shell

APPEARANCE: This large cream-white carnivorous shell is marked with corrugations encircling its shell (the appearance is largely variable as to how deep the corrugations appear).

SIZE: Up to 80mm

HABITAT: Mid to low tide level often in areas of high wave action

DISTRIBUTION: Southern Australia & New Zealand

DOG WINKLE (CONTINUED)

DIET: Carnivore

Did you know? Some shellfish can survive for many years, with dog winkles living up to 20 years.

In late spring and summer look out for the beach washed egg cases of the dog winkle. These unusual eggs look like pink bubble wrap washed upon our shores.

ANEMONE CONE SHELL

SCIENTIFIC NAME: *Conus anemone*

OTHER NAMES: Cone shell

APPEARANCE: A conical shape shell with a long narrow opening. Its markings are variable and range from brown and chestnut through to purplish markings on cream.

SIZE: Up to 50mm

HABITAT: Often found under rocks in the mid tide to low tide level but can be found at 130m depth.

DISTRIBUTION: Southern Australia

DIET: Carnivore

Did you know? Cone shells are active hunters harpooning their prey with paralysing toxins so that they can then be reeled back in to feed on. The toxin can result in paralysis and painful wounds in humans, with tropical species having even been known to cause fatalities. They are usually found hunting at night for polychaete (bristle) worms.

WARNING! Do not touch. Some cone shell species can be deadly.

OCTOPUS
(Cephlapods)

BLUE RINGED OCTOPUS

SCIENTIFIC NAME: *Hapalochlaena maculosa*

OTHER NAMES: Southern blue-ring octopus or lesser blue-ring octopus

APPEARANCE: This small octopus is typified by its oval body and 8 relatively short legs. Most of the time its mottled dull brown appearance allows it to remain camouflaged until disturbed when it glows iridescent blue rings.

SIZE: Up to 22cm total length (mantle up to 6cm)

HABITAT: Sheltered and moderately exposed reef, sand and seagrass beds.

DISTRIBUTION: Southern Australia, Qld around to WA & Tasmania

DIET: Carnivore - crabs, snails and shrimp

Did you know? The blue ringed octopus is renowned for its deadly toxin which it injects with its saliva when provoked. They have two separate venoms, one for predators and one for prey, the one for predators contains tetrodotoxin. Tetrodotoxin can be up to 10,000 times more potent than cyanide.

The toxins are generally used to paralyse their prey but can result in numbness and difficulty in breathing for humans. NEVER handle a blue ringed octopus!

MAORI OCTOPUS

SCIENTIFIC NAME: *Octopus maorum*

APPEARANCE: Australia's largest octopus the Maori octopus has a dark orange-brown body with numerous small white spots. Its body is oval with the front pair of legs being the longest and broadest. In some postures the skin takes on a spikey appearance.

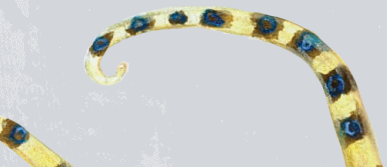
SIZE: Mantle can reach 30cm, with maximum total length of 1 metre. Weight up to 10 kg.

HABITAT: Rocky reefs in crevices

DISTRIBUTION: New Zealand and Australia

DIET: Carnivore - prey includes crabs, abalone, crayfish, mussels, fish and other octopus

Did you know? Not only the largest octopus in Australia, the Maori octopus is the largest octopus in the southern hemisphere.



SEASTARS & SEA CUCUMBERS
(Echinoderms)

Whilst often referred to as starfish, seastars are not fish at all, belonging to a group of animals called echinoderms. Echinoderms include seastars, sea cucumbers, brittlestars and urchins. They typically have radial symmetry and spiny skin, though this is more obvious in some species than others. They control their movement through a hydraulic (water) vascular system of 100s of tubed feet, which create a vacuum to hold onto surfaces as they creep around the rockpools. Prying an unsuspecting seastar from its surface can result in these miniature tubed feet being ripped from the owners body. Fortunately for the echinoderm, they are also masters of regeneration, with the ability to replace body parts and in some cases organs as well!

SMALL GREEN SEA STAR

SCIENTIFIC NAME: *Parvulastra exigua*

OTHER NAMES: Five-armed cushion star

APPEARANCE: This small blue-green sea star is a pentagonal shape. The underside is a blue shade.

SIZE: Up to 20mm

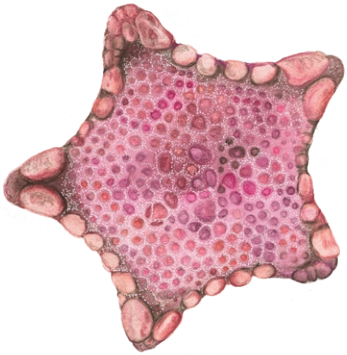
HABITAT: Under rocks in intertidal rockpools.

DISTRIBUTION: South-eastern Australia (also found in South Africa)

DIET: Herbivore - algae

Did you know? The little green sea star feeds by vomiting its stomach over its prey, an extreme example of bad table manners!

BISCUIT STAR



SCIENTIFIC NAME: *Tosia australis*

APPEARANCE: The biscuit star is so named as its appearance resembles an old fashioned cookie. Its upper surface is distinguished by interlocking small plates with 6 to 8 larger plates along the edge of each of its arms. Biscuit stars are found in a variety of colours.

SIZE: Up to 10cm

HABITAT: Intertidal rocky shores and coastal waters

DISTRIBUTION: Southern Australian coasts

DIET: Carnivore - invertebrates and sponges

Did you know? Biscuit stars get their name from their resemblance to an old fashioned homemade biscuit.

In recent times biscuit stars of this species were divided into two species which can be distinguished by how they breed.

CRIMSON SEASTAR

SCIENTIFIC NAME: *Meridiastra gunnii*

APPEARANCE: With six arms this seastar is distinguished by its crimson upper and its bright orange tube feet on the under surface.

SIZE: Up to 7cm

HABITAT: Under rocks in the lower intertidal zone

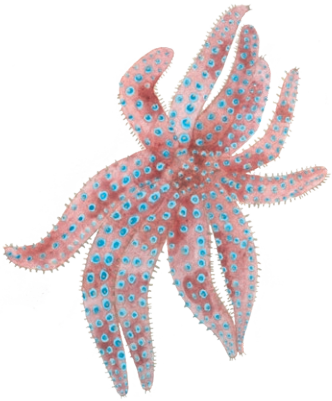
CRIMSON SEASTAR (CONTINUED)

DISTRIBUTION: Southern Australia

DIET: Carnivore

Did you know? Whilst many sea creatures of our rocky shores undergo a larval stage the crimson seastar does not. Instead the young hatch as miniature versions of the adults.

ELEVEN ARMED SEASTAR



SCIENTIFIC NAME: *Coscinasterias muricata*

OTHER NAMES: Spiny seastar or large seastar

APPEARANCE: Contrary to the name this large seastar can have anything from 7 to 14 arms. The long arms are covered in an armour of small spines.

SIZE: Up to 50cm

HABITAT: Rocky and sandy areas

DISTRIBUTION: Southern Queensland around to Western Australia, Tasmania and New Zealand

DIET: Carnivore – small crabs and marine worms

Did you know? Masters of regeneration, eleven armed seastars can even self-divide, splitting their body into two to make a replica of the original!

COMMON BRITTLE STAR

SCIENTIFIC NAME: *Ophioneries schayeri*

OTHER NAMES: Banded brittle star, Snake star or Schayer's brittle star

APPEARANCE: A central disc up to 2.5cm with 5 arms up to 15cm long. The main body is cream and the snake like legs are cream marked by light and dark grey-brown bands. Small spines occur along the legs.

SIZE: Up to 18cm

HABITAT: Under rocks near low tide level

DISTRIBUTION: Native to Australia

DIET: Plankton and decaying material

Did you know? Brittle stars are extremely fragile, SO PLEASE DO NOT HANDLE! Handling can result in the brittle star dropping legs or parts of their legs. This technique is used as a decoy when trying to escape predators, they later will regrow any missing limbs.

SEA CUCUMBER

SCIENTIFIC NAME: *Lipotrapeza vestiens*

APPEARANCE: A soft bodied sausage shape covered in tubed feet

SIZE: Up to 12cm

HABITAT: Buried in sand under rocks

DISTRIBUTION: Native to Australia

DIET: Organic matter

Did you know? Sea cucumbers take self-sacrifice to an extreme. When faced with predators the cucumber vomits up its internal organs to regrow them at a latter stage.

WORMS
(Annelids & Platyhelminthes)

Marine worms are a huge and widely varied group from a number of phylums. They can be brilliantly coloured or camouflaged to perfection. They can be herbivores, carnivores, omnivores or predators. They can be smooth bodied, rounded, flattened or have an array of tentacles. With their soft bodies they are open to many threats such as predation and damage as a result of wave action. Many have clever coping strategies as a result.

FLAT WORM

SCIENTIFIC NAME: *Notoplana australis*

OTHER NAMES: Southern flatworm

APPEARANCE: Roughly oval and flattened with two visible eye spots. Colour from white through to grey brown.

SIZE: Up to 3cm

HABITAT: Underside of rocks

DISTRIBUTION: SA around to NSW and Tasmania

DIET: Living and dead animals

Did you know? It takes a keen eye to see these almost translucent worms that seem to blend in with the rocks they inhabit. From their flattened bodies they partially eject their gut outside of their mouth to eat. Most flatworms have both male and female reproductive organs but will still find a partner to mate with.

SCALE WORM

SCIENTIFIC NAME: *Lepidonotus melanogrammus*

OTHER NAMES: Dark-marked scale worm

APPEARANCE: A short flattened worm with 12 pairs of scales in 2 rows. Speckled browns and greys.

SIZE: Up to 5cm

HABITAT: Inshore and continental shelf

DISTRIBUTION: Southern Australia

DIET: Carnivore

Did you know? The scale worm is often found crawling over the banded brittle star, but scientists are unsure what the association is. There is still much to learn and discover when it comes to marine life.

SYDNEY 'CORAL'

SCIENTIFIC NAME: *Galeolaria caespitosa*

APPEARANCE: Found individually or in large colonies of calcareous tubes. The worm that lives within the tube is seldom seen with its own doorway (operculum) closing over the tubes.

SIZE: Up to 2cm

HABITAT: Mid to lower intertidal zones

DISTRIBUTION: Southern Australia

DIET: Organic matter

Did you know? Sydney coral is not a coral at all but instead a worm. When the tide is in they open the doorway of their tube allowing their head with its black tentacles to emerge and feed.

FIELD NOTES

Scientists, researchers and naturalists often carry a notebook to record observations and thoughts about the things they see, make sketches and collect evidence of their time in nature. Over time these notes can create a seasonal timeline and help us make predictions about the plants, animals and areas we are observing.

Use this section to take field notes and make sketches of all the amazing discoveries you make.

FIELD NOTES

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RESOURCES

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INTERNET SOURCES

- Atlas of Living Australia, https://bie.ala.org.au
- Australian Government, Department of the Environment and Energy, http://www.environment.gov.au/biodiversity/abrs/online-resources/species-bank/index.html
- Australian Museum, https://australianmuseum.net.au
- Atlas of Living Australia, https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au
- World Register of Marine Species, http://www.marinespecies.org/aphia.php
- Climate Watch, http://www.climatewatch.org.au/species/marine/ribbed-top-shell

INTERNET SOURCES (CONTINUED)

- DAN, Divers Alert Network, https://www.diversalertnetwork.org/health/hazardous-marine-life/blue-ringed-octopus
- Marine Education Society of Australia, http://www.mesa.edu.au
- Taxanomic Toolkit for Marine Life of Port Phillip Bay, http://portphillipmarinelife.net.au
- The Seashells of New South Wales, https://seashellsofnsw.org.au

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