



# Rockpool Pocket Guide

## ***Rockpool Pocket Guide***

If you're as excited as we are about the wonders to be found on rocky shores, this little guide is a first step to help you identify the most common plants and animals found on the rocks and in the rockpools around the Cape Peninsula.

If you enjoy your rockpooling experience, launch yourself further into discovery by visiting different locations. You will soon notice that there are different types (species) of barnacles or limpets or top shells, etc. You may also begin finding creatures that are not included in this guide. We have included the details of some more comprehensive guides on our recommended reading list on page 15.

Scientists keep detailed records of their sightings, which we call data. These records help us understand more about which plants and animals live in different parts of the ocean. Each time you visit the shore, you could take a notebook and pencil. Make a note of the date and the place and then make a list of all the species you have identified. You can also contribute to citizen science by uploading this data to an app such as iNaturalist. Did you know that new species are still being discovered each year? Perhaps you will find the next one!



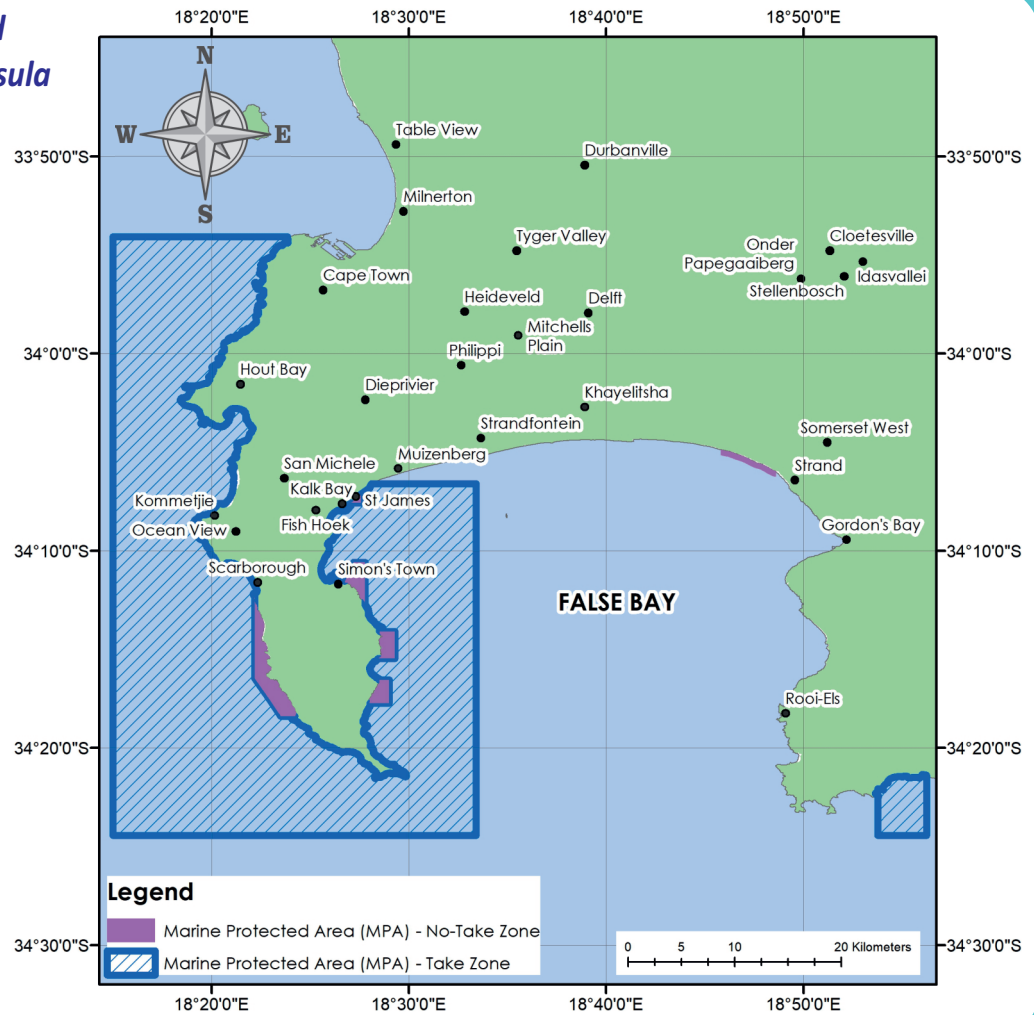
## Getting started

Check tides and weather. It's best to visit rock pools an hour before low tide. A rising tide can mean the rocks are quickly covered by water. You can check the tide times on the internet, for example, try <https://tides.mobilegeographics.com/>.

Got your hat and sunblock? A pencil and notebook to keep notes on your findings? Great, now you're ready to head onto the shore and explore! Here are some important reminders for a fun, safe and responsible trip to the rocky shore:

1. **Walk slowly and carefully:** rocks are slippery, especially when they're covered in seaweed.
2. **Watch out:** Make sure to face the sea at all times so that you're not soaked by an approaching wave.
3. **Sit patiently and look carefully:** some animals are tiny, camouflaged or nestled between rocks and you only notice them after a few minutes.
4. **Leave animals exactly where you find them:** they've worked hard to find their perfect spot on the shoreline. This carefully chosen home can be in a particular place that might not seem important to us, but if they lose this spot, it can mean big changes for them.
5. **Be gentle at all times:** tiny tube feet, many arms and delicate shells – remember that the animals of the rocky shore are all living creatures that can be damaged if they're mishandled. If you're unsure, rather leave an animal alone!
6. **Look, and leave:** as beautiful as these ocean treasures are, they are all important pieces in a big ecosystem puzzle. Taking anything home with you can affect the delicate balance of life on the coast. Litter is the only exception to this rule.
7. **Are you in a Marine Protected Area (MPA)?** If you're on the Cape Peninsula, the chances are the rocky shore you're exploring is protected. Check our map for restricted zones in the Table Mountain National Park. It's best to follow the principles of “Take Only Photos, Leave Only Footprints”, no matter where you are!
8. **Be a responsible beach user:** make sure not to leave any litter. If you're especially responsible, an impromptu little beach clean-up is always beneficial!

## Marine Protected Areas around Cape Town and the Cape Peninsula





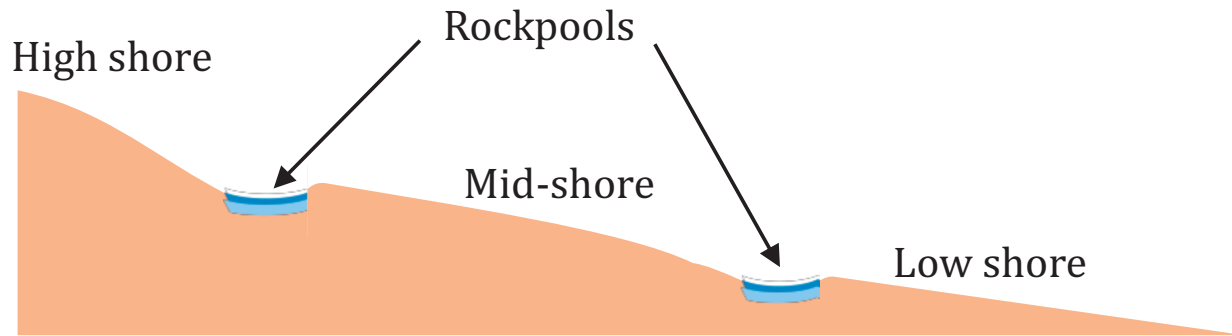
## **Habitat**

Rocky shore creatures have their own special place where they live on the shore.

The **high shore** tends to be dry and only gets splashed with waves when it is high tide.

The **mid-shore** is a tricky place to live: half the time it is covered by water (high tide) and half the time it is exposed to the air (low tide).

The **low shore** is almost always covered by water except when it is a very low tide.



## **Feeding behaviour**

Rocky shore creatures feed in different ways:

1. **Predators** catch and eat live animals;
2. **Grazers** eat seaweed and algae growing on rocks;
3. **Scavengers** eat anything they can find (living or dead!);
4. **Filter feeders** catch tiny plants and animals (plankton) floating in the water.

# 1 Fish

Fish are vertebrates, the only group of animals in this guide that have a backbone. All other groups are invertebrates. Fish need to be underwater at all times because they breathe using gills. They might be hiding under rocks, or blending in with the seaweed floating in the pool. Some fish make rockpools their permanent home, but you can keep an eye out for others, like the Mullet, that might be visiting on a high tide.



Klipfish

**Habitat:** Rockpools on the low shore

**Feeding behaviour:** Predator

Patterned with different colours to blend in with the rocks and seaweed, these little fish have big eyes to look out for predators. There are lots of different kinds of klipfish – it can be hard to tell them apart. South Africa has 39 different species, found nowhere else in the world. Klipfish don't lay eggs and give birth to live young. Make sure that your shadow doesn't fall over the rockpool – if the fish know you're there, they'll dart away!



Goby

**Habitat:** Rockpools on the high shore

**Feeding behaviour:** Predator

Camouflaged to blend in with the rocks, these little fish can survive in pools on the high shore where the water becomes warm and salty during a low tide. They lie in wait, hiding from prey that might pass by. You'll notice their round heads and mottled patterns on their skin.



Rocksucker

**Habitat:** Rockpools on the low shore

**Feeding behaviour:** Predator

These flat fish have no scales, and a large suction pad under their body helps them stick tightly to the rocks. They use their big teeth to scrape limpets and other snails off the rocks. You'll have to look hard to find this fish, but they can be found hanging out upside down underneath rocks and in crevices.



Mullet

**Habitat:** High tide visitors to low shore rockpools

**Feeding behaviour:** Grazer

These silver fish move as a group called a shoal. They can jump out of the water to escape predators. Most of their food comes from microscopic plants.



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## Echinoderms

The animals in this group have radial symmetry – they have five parts to their body and no back and front to them. The group name means “spiny skinned”, but not all of them fit this description. They have no eyes and move around using many tube feet that suck onto rocks.

Spiny seastar



**Habitat:** Rocks/rockpools on the mid- to low shore

**Feeding behaviour:** Predator

Spiny seastars are quite large and move around rockpools to hunt. You might find them out of the water on a low tide where they survive until the tide rises again. Feel the knobby skin covering their arms that acts as protection from predators. However, if they do get injured, these seastars can re-grow limbs! Their favourite prey is mussels.

Cushion-star



**Habitat:** Rocks/rockpools on the mid- to low shore

**Feeding behaviour:** Grazer

Flat with many patterns and colours, these small seastars blend in perfectly on the rocks amongst the algae.

Red seastar



**Habitat:** Rocks/rockpools on the mid- to low shore

**Feeding behaviour:** Scavenger

The orange or red skin on these seastars looks like tiny, overlapping tiles on close inspection. These seastars find decomposing plants and animals in the rockpools to eat. If they are injured, they can grow new arms. It is not unusual to find specimens with 4 or 6 arms.

Brittlestar



**Habitat:** Rocks/rockpools on the mid- to low shore

**Feeding behaviour:** Scavenger

Their thin, delicate arms all connect to a central disc. Their name gives us a clue about how fragile their arms are! You have to look carefully to find them hiding under rocks where their arms reach out to grab food drifting past in the water.



Feather-star

**Habitat:** Rocks/rockpools on the mid- to low shore

**Feeding behaviour:** Scavenger

A small, soft seastar that grips onto rocks. They have more than 5 arms which branch out to give its feathery appearance. They gracefully wave their arms to collect food floating in the water.



Cape urchin

**Habitat:** Rocks/rockpools on the mid- to low shore

**Feeding behaviour:** Grazer

Bright red, purple and pink, urchins look prickly and pumpkin-shaped. They can move their spines but use tiny tube feet between their spines to move themselves around. Look out for urchins using tube feet to hold shell pieces (or even plastic litter!) on top of themselves. This behaviour protects them from the sun.



Sea cucumber

**Habitat:** Rocks/rockpools on the mid- to low shore

**Feeding behaviour:** Filter feeder

There are several different kinds to be found, but you'll typically see the black sea cucumber wedged under rocky overhangs or buried in the sand so that just its tentacles are sticking out. They use their ten, tree-like branching tentacles to grab small plants and animals from the water and put them into their mouth.

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## Cnidarians



Anemone

Anemones, corals, sea fans, jellyfish and bluebottles may look very different, but the animals in this group all have nematocysts (stinging cells) that they use to capture and stun their prey.

**Habitat:** Rocks/rockpools on the mid- to low shore

**Feeding behaviour:** Predator; Scavenger

They might look like soft flowers of the ocean, but these animals have sticky tentacles covered in microscopic stinging cells that they use to catch food and pull into their mouth. Anemones can move very slowly and might be found on their own, or in colonies (groups). There are several different kinds in rockpools around the Cape Peninsula: some might be buried in the sand with just their tentacles visible, others are stuck onto rocks and under ledges in pools.



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## Crustaceans (Arthropods)

Crabs, lobsters, barnacles, shrimps, beach hoppers all have a jointed skeleton outside the body. This exoskeleton does not get larger so crustaceans have to moult several times as they grow.

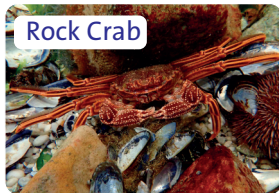


Barnacle

**Habitat:** Rocks/rockpools on the mid- to low shore

**Feeding behaviour:** Filter feeder

Found in clusters cemented to the rocks, barnacles do not look like the other crustaceans. Once a young barnacle settles onto a rock, it spends its whole adult life stuck there, head-first. Watch for their feathery legs (complete with breathing gills ) reaching out of the top of the shell as a wave washes over, catching drifting plankton.



Rock Crab

**Habitat:** Rockpools on the mid- to low shore

**Feeding behaviour:** Predator; Grazer

Red, brown and light orange in parts, the Cape rock crab is commonly seen in rockpools. They can move fast (sideways) to catch prey such as small fish and hide cleverly under rocks and overhangs. Their hard shell protects them from predators.



Hermit crab

**Habitat:** Rockpools and sandy beaches

**Feeding behaviour:** Predator

There are lots of different hermit crabs. Most use a shell that used to belong to a snail to protect their soft bodies. As they grow, they need to find bigger shells in which to live.

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## Molluscs

Many animals in this group are snail-like, with soft bodies and move around on what we call a "foot". Many, like limpets and whelks, grow shells to protect their soft bodies from predators and from drying out in the sun. Some have internal shells like the cuttlefish. The octopus and squid, with long arms full of suckers and excellent eyesight, also belong to this group.



Whelk

**Habitat:** Rocks/rockpools on the mid- to low shore

**Feeding behaviour:** Predator; Scavenger

The oval, pointed shell helps to identify these snails that move over rocks using their muscular foot. Using an acid to soften its prey's shell, the whelk uses its tongue to drill a hole into its prey. It can then push its long snout into its prey and eat the soft animal inside the shell.

Topshell



**Habitat:** Rocks/rockpools on the mid- to low shore

**Feeding behaviour:** Grazer

Several different species of this snail with its round, spiral shell can be found on the rocky shore. The shell may be patterned like a chess board or black with a pink marking on the inside lip.

Alikreukel



**Habitat:** Rockpools on the mid- to low shore

**Feeding behaviour:** Grazer

The Alikreukel snail grows much larger than the little top shells. It is found low on the shore. Top shells and whelks all have a lid they use to close their opening and keep them protected and moist when out of the water. The Alikreukel's lid is a knobby white disk often found lying on the beach.

Pear limpet



**Habitat:** Rocks on the low shore

**Feeding behaviour:** Grazer

Pear limpets are named after the shape of their shells. All limpets suck their large foot tightly to the rocks so they are not swept away when rough waves crash over them. Pear limpets are the farmers of the rocky shores, grazing only the top layers of their algal garden surrounding their shell and leaving some for the next day. This way, they maintain a constant food supply.

Long-spined limpet



**Habitat:** Rocks on the low shore

**Feeding behaviour:** Grazer

These snails also keep gardens of algae on which to feed. If another grazing animal comes near to try and eat from the limpet's garden, they will push them away.



Keyhole limpet



**Habitat:** Rocks/rockpools on the low shore

These snails have a shell that has a hole at the top to pump dirty water out into the sea. Clean water comes in through the front of the shell, bringing with it the oxygen the snail needs to breathe. The hole on the top might help the used water out of the shell, but it also puts this limpet at risk of drying out in the sun. That's why most of these limpet are nocturnal so it will be hiding under rocks during the day, only coming out at night to eat sponges and seaweeds.

**Feeding behaviour:** Predator; Grazer

Periwinkle



**Habitat:** Rocks on the high shore

Tiny snails that look like black papaya seeds and store water so well that they survive for many hours out of the water. You'll find them clustered together hiding from the sun. They grow very slowly and stay quite small because there is so little food for them on the high shore. These snails eat black lichen (algae) which you can find growing on the rocks.

**Feeding behaviour:** Grazer

Venus ear



**Habitat:** Rockpools on the mid- to low shore

Shaped like an ear, this snail has holes along the side of its shell. Clean water comes in through the front of the shell and dirty water is pumped out through the holes you can see on the top of the shell. They eat seaweed and are often mistaken for small abalone.

**Feeding behaviour:** Grazer

Abalone



**Habitat:** Rockpools on the mid- to low shore

Also called Perlemoen, these snails trap pieces of kelp and seaweed drifting in the water by using their "foot" to lift themselves up and then clamp down on the food. They grow very slowly and can only breed after 7 years. Numbers of abalone are very low because people have poached too many on our coastline. It is illegal to remove this snail from the wild. Can you tell the difference between a Venus ear animal and an Abalone?

**Feeding behaviour:** Grazer

Chiton



**Habitat:** Rockpools on the mid- to low shore

A flat snail with eight overlapping plates that look like protective armour. Their eyes peek out from under these plates. Chitons use a flat tongue (called a radula) which has rows of teeth to scrape algae off the rocks as food. Tiny hairs on the back of some chitons can be a bit prickly if you run your finger over them.

**Feeding behaviour:** Grazer

Black Mussel



**Habitat:** Rocks on the low shore

These snails are called bivalves because their shell is made up of two hinged parts. They attach to rocks using black fibres called byssal threads. As waves crash over them, mussels open the two halves of their shells to suck in seawater and filter pieces of food from the water.

**Feeding behaviour:** Filter feeder

Nudibranch



**Habitat:** Rockpools on the low shore

These sea slugs have no shell. There are many different species, which all have different shapes, sizes and colours. Their bright colours are often a warning to other animals that many have poisons in their skin that would kill a predator.

**Feeding behaviour:** Predator

Cuttlefish



**Habitat:** Temporary rockpool visitors on the mid- to low shore

**Feeding behaviour:** Predator

The cuttlefish swims by rippling the fins that run down either side of its body. It has a flat internal shell that you might sometimes find washed up on the shore (it looks like a tiny white surfboard!). They can change their colour and skin texture to camouflage themselves.

Octopus



**Habitat:** Temporary rockpool visitors on the mid- to low shore    **Feeding behaviour:** Predator  
The octopus is a master of disguise, matching its colour and skin texture to its surroundings. It moves through rockpools on its eight arms with powerful suckers all along their length. Its eyes are similar to ours, and it might well see you before you spot it!

## 6 *Polychaetes*

These are worms with segmented bodies. Each segment has a pair of stiff bristles, hence their name “Bristleworms”. Their bodies range from simple to wonderfully complex.

Cape reef worm



**Habitat:** Rockpools on the low shore    **Feeding behaviour:** Filter feeder  
Inside a sandy tube glued to the rocks is where you'll find this worm. They build their homes out of sand and hide away inside them during the low tide. On a high tide, they will emerge using their tentacles to grab food drifting past in the water.

Feather-duster worm



**Habitat:** Rockpools on the low shore    **Feeding behaviour:** Filter feeder  
These worms push their brightly coloured feathery fans out from tubes hidden between the rocks to catch food drifting in the water. You'll notice lots of different colours. The fan is quickly pulled back into the tube if you put your finger nearby or a predator approaches.

## 7 Algae

There are three main types of algae (seaweeds): brown, red and green. There are many different species to be found on the rocky shore. Algae are the foundation of the whole food web that sustains all marine life. Algae photosynthesise, making their own food using energy from the sun. In return, they release oxygen which is essential for most organisms in order to breathe. These ocean plants provide a shelter for many animals, and produce food for grazers. It's fun to feel the different textures of each algae – some are slimy, others are rough and knobby and some form a flat carpet over the rocks.

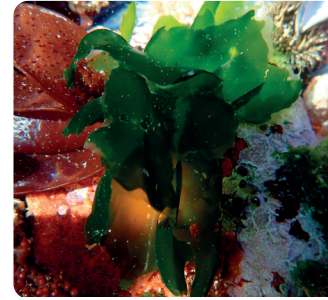
Paper algae



Jelly algae



Sea lettuce



Tongue algae



String algae



Sea bamboo kelp





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## Other Animals

Lots of different animals call the rocky shores their home, while some might just be passing by. Pause a moment to listen out for the piping call of the black oystercatcher calling to its red-billed mate, or look up to the sky to see a kelp gull cleverly dropping its snail snack from the air to shatter on the rocks. Below is a list of other animals you might spot if you spend enough time exploring the rocky shores.

### Birds

Kelp gull



Black oystercatcher



Cormorant



African penguin



### Mammals

Cape clawless otter



Cape fur seal



Southern right whale



Long-beaked common dolphin



## ***Go further***

Once you've had your first taste of rockpooling, you might well be hooked! You can keep learning with these great resources for all ages and stages of discovery.

### ***For young explorers:***

1. Branch, M. 2018. Exploring the seashore in Southern Africa. Struik Nature, Cape Town.
2. Von der Heyden, S. 2018. Southern African Sea Life: A guide for young explorers. Struik Nature, Cape Town.

### ***For budding scientists of all ages:***

1. Branch GM and Branch ML. 2018. Living Shores: Interacting with marine ecosystems in southern Africa. Struik Nature, Cape Town.
2. Payne AIL and Crawford RJM (eds). 1989. Oceans of Life off Southern Africa. Vlaeberg Publishers, Cape Town.

### ***Diving deeper into exploration:***

1. Branch GM, Griffiths CL, Branch ML and Beckley LE. 2016. Two Oceans: A guide to the marine life of southern Africa. Struik Nature, Cape Town.

## ***Photographic Credits***

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