

SOUTHERN AUSTRALIAN TEMPERATE REEFS

MOBILE INVERTEBRATES

Mobile invertebrates are those animals without backbones that move about such as urchins, sea stars, crabs, prawns, lobsters, snails, squid and cuttlefish.

This fact sheet covers crustaceans and echinoderms.

See **Mobile Invertebrates Fact Sheet 2** for molluscs and worms.



Crustaceans - crabs, prawns, lobsters

There are more marine species in the crustacean group than in any other group in the oceans, with more than 50,000 known species so far and many more unidentified. They include crabs, hermit crabs, lobsters, prawns, shrimps, barnacles, isopods, amphipods, fish lice, copepods and krill. All crustaceans have two pairs of antennae, and the

body is divided into three parts: the head, thorax and abdomen.

Related to spiders and insects - crabs, prawns and lobsters have an exoskeleton (skeleton on the outside) and segmented bodies with 8-10 pairs of limbs. Like insects they need to moult to grow. During the moult they can also regrow limbs and pincers that were removed by predators.

Hermit crabs are particularly interesting. They have evolved without a shell over their abdomen, which remains soft and vulnerable to predators. Thus, they search out empty snail shells to use for protection of this soft area. Their back pair of legs have also evolved to be small but strong to hold onto the inside of the shell to prevent predators from pulling them out. When hermit crabs grow, the snail shell doesn't so they need to find a new, larger one and hermit crabs have often been seen fighting over good shells.



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Echinoderms - sea stars, urchins, sea cucumbers, feather stars, brittle stars

All echinoderm bodies are designed around the number five: five arms (in most cases), five stomach pouches, five sets of gonads, five rows of tube feet and so on.

Sea stars come in many colours and sizes. South Australia is home to the second smallest sea star in the world, *Parvulastra parvivipara*, which only grows to 9 mm in diameter and is only found on the west coast of Eyre Peninsula. The name 'parvivipara' relates to the fact that the females give live 'birth' with the juveniles emerging through their backs. This is rare for echinoderms, most of which produce planktonic larvae that live in the water column for a while before settling and changing into the adult form.



The majority of sea stars have five arms with the underside of each arm covered in tiny suckers (tube feet) that are used to move around and assist in feeding.

Some graze on algae while many prey on other animals such as cockles and mussels, although they do not have teeth or claws. Sea stars can regrow a severed arm, which may be dropped to fool a predator while the sea star makes a getaway, and whole sea stars can regrow from a severed arm as long as it contains some cells from the main central body.

Urchins are usually spherical with spines that are used to move about, for protection and to help wedge themselves into a crevice as a defence against predators.



If you look carefully you can see that urchins have five rows of tube feet down the outside of their bodies. Urchins also have five teeth (known as the 'Archimedes' lantern') and are mostly herbivorous, feeding mainly on seagrass, algae and bacterial films.

Feather stars and brittle stars are more difficult to spot unless you know what to look for but both groups are found on reefs. Feather stars often have multiples of five arms, often 10-15 and are rather like upside down, spiky sea stars with their mouths on top instead of underneath. Brittle stars are very similar to sea stars with five long, snaky arms and a distinct central body. Their name refers to their brittleness, as they will often drop part of an arm even with only a light touch but as with sea stars they can grow it back.