

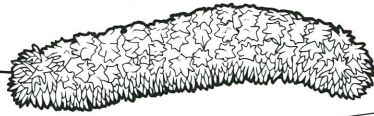
Student

Fact Files



Australian Government
Great Barrier Reef
Marine Park Authority

#21

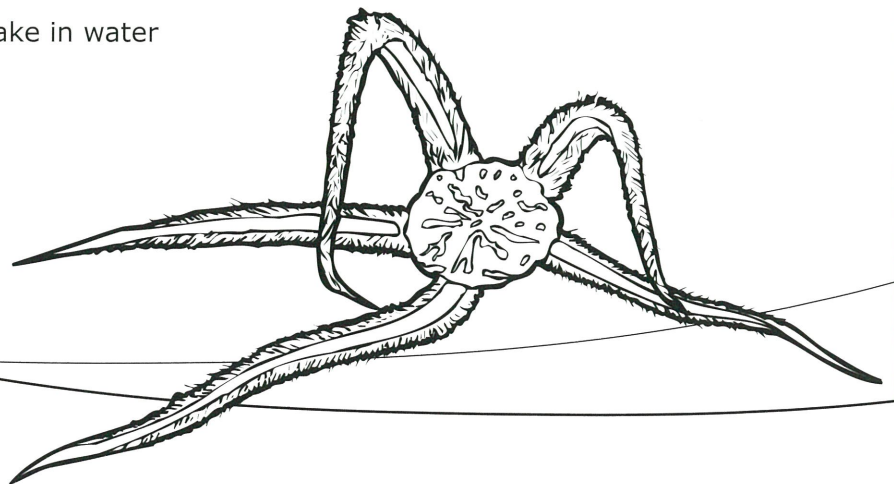


March 2005

Echinoderms


(Sea cucumbers, sea urchins and brittle stars)

- There are at least 800 species of echinoderm on the Great Barrier Reef.
- Echinoderms use their tiny tubed feet to move around.
- Frightened sea cucumbers can expel their entire stomach through their bodies to distract predators. The sea cucumbers' intestines regrow after about nine days.
- Sea cucumbers are cucumber-shaped with no arms.
- To breathe, sea cucumbers take in water through their anus.
- Some cucumbers have tiny fish known as pearlfish living inside them. As a sea cucumber breathes, the pearlfish swims inside and stays there during the day.
- Sea urchins are globe-shaped with no arms.
- Sea urchins are nocturnal and always feed at night.
- Brittle stars are the fastest moving of the echinoderms.



our great barrier reef
let's keep it great





Many species of echinoderm on the Great Barrier Reef are rare. Common types of echinoderms include sea stars, sea cucumbers, sea urchins and crinoids. Echinoderms are among the strangest of invertebrate animals.

Appearance

Echinoderms have no real head or tail end. Instead, their bodies are built on a radial pattern, often in a form with five sides. They have three main characteristics including a symmetrical five-part body plan, tube feet and a skeleton of plates.

Their most interesting feature is their amazing water-vascular system, which consists of water-filled tubes ending in numerous finger-like projections (tube feet) that stick out through the skin. The water-vascular system works on water pressure, creating a network of tube feet that look like hundreds of tiny hydraulically operated legs.

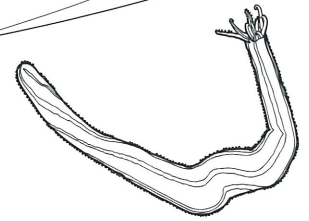
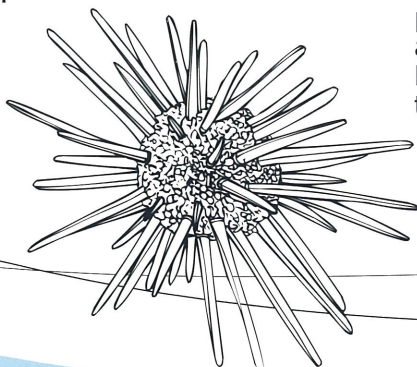
The name echinoderm, meaning 'spiny skin', relates to their outer surface that is covered with limestone plates that are often formed into spines. The variations of shapes range from sausage and star shapes to a ball of spikes.

Habitat

All echinoderms live in water. They occupy many habitats including coral reefs, mangroves, seagrass and soft-bottom areas.

Breeding

Many echinoderms reproduce when parts of their bodies break off and grow or sexually reproduce through mass spawning.



Sea cucumbers

Sea cucumbers live in sandy and muddy areas. They have an unusual method of breathing: they take in water through their anus to breathe. Sea cucumbers feed like a vacuum on dead plant and animal material in the sand. They take sand in through their mouth, digest the food material and then expel clean sand through their anus. Some, like the beach-ball sea cucumber, use feather-like arms to filter food from the surrounding seawater.

When disturbed or frightened, some sea cucumbers pour out a mass of sticky white threads to confuse or trap their enemies. Others are capable of releasing toxins which in aquaria have been known to kill all the animals, including the sea cucumbers themselves. Sea cucumbers were once the basis for an important international fishery, *bêche-de-mer*.

Sea urchins

Sea urchins are globe-shaped with no arms. They have a compact skeleton with closely fitted plates and moveable spines with a ball and socket joint. Sea urchins also have powerful scraping jaws known as 'Aristotle's lantern'. The sea urchin is nocturnal, hiding in crevasses during the day and emerging at night to feed. Sea urchins can be found in both warm and cold water. Predators of sea urchins include octopus and triggerfish, which bite off the spines enabling the fish to crack open the body of the urchin.

Brittle stars

Brittle stars have long flexible arms that radiate out from a small central disc and are used for swimming. They are often found living under rocks during the day. Small species feed on drifting plankton by raising their arms into the water above them. Some large specimens have been known to feed on fish that they have caught while the fish were sleeping.

