

## SEA ANEMONES

Carnivorous and always hungry, a sea anemone is not a plant, as some people might think, but a silent slow-motion predator that will devour any small animal careless enough to stray within reach of its deadly tentacles. Equipped with tiny poisonous harpoons and digestive enzymes so strong they can digest the flesh of a small animal in 15 minutes, the sea anemone belies its harmless appearance.

Sea anemones are animals belonging to the phylum Cnidaria, which includes the jellyfish, corals and sea pens. They live in all oceans from the shore to a depth of 10,000 metres, and range in size from one centimetre to almost two metres in diameter. They attach themselves to rocks, wharves and other hard surfaces, or construct burrows in mud and sand.



Sea anemones have a flat upper surface, with a central mouth surrounded by tentacles, a tubular body, and a flat base that attaches to the substrate.

A sea anemone uses its tentacles to capture prey and defend itself against predators. Every tentacle is covered with thousands of tiny stinging capsules called nematocysts. Each capsule contains a coiled hollow thread with a barb on the end. The threads carry a minute amount of poison capable of paralysing or killing small animals. When a small fish, shrimp or crab comes into contact with the tentacles, hundreds of the capsules burst open and fire their barbed threads like harpoons, which pierce the skin of the animal and inject their poison.

The thread remains attached to the tentacle so, like a harpooned whale, the victim is held by its captor. The anemone moves all the nearby tentacles into position to sting and hold its prey until it is subdued by the poison. It then moves the prey to its mouth and swallows it whole. Later, it spits out any nondigestible parts, such as bones and shells. Although some tropical species can inflict painful stings, none of British Columbia's anemones are poisonous to humans.

Sea anemones have no visible sense organs, but they can distinguish between edible and inedible items. If you were to drop a piece of paper onto its tentacles, a sea anemone would grasp but then discard it. But if you first soaked the paper in clam juice, the anemone would eat the paper, because it tastes like food.

A sea anemone also uses its stinging cells for defence: a mouthful of poisonous barbs is unappetizing to most animals. The sea slug *Aeolidia* is one animal that enjoys a good meal of sea anemone, sometimes eating 50 to 100 per cent of its own body weight at one sitting. But *Aeolidia* must attack carefully, as it is not immune to the anemone's poison—a large anemone can seriously injure or kill the sea slug. *Aeolidia*'s digestive tract is lined with a protective coating to prevent injury from any unexploded nematocysts it consumes.

Sea anemones also use their poisonous stings against their own kind, usually while competing for territory. Some species even possess special clublike structures, packed with potent stinging capsules, that they use to battle other anemones. Territorial fights often result in serious injury and even death to one or both anemones.

Many sea anemones can clone themselves—a useful trait when you are stuck to a rock with no members of the opposite sex nearby. Some species break off a small part of their base, which then grows into an adult anemone. Others seem to crawl in two directions at once and slowly tear themselves in half lengthwise (don't

try this at home kids!). Both of these methods result in two genetically identical animals where once there was one. A small intertidal anemone known as *Anthopleura elegantissima* is a master of cloning. A single anemone will clone itself many times, creating large aggregations of genetically identical anemones. As the colony expands, it may run into another colony of different genetic makeup.

When one colony encroaches on the territory of another, the anemones on the periphery engage in battle using bulbous clubs full of nematocysts to sting the enemy. The anemones keep stinging each other until one draws away or dies. Considerable injury may be inflicted on members of both clones, and eventually, the colonies establish a narrow band of bare rock between them. Encroachment by either colony into this no anemone's land results in more fighting.

Many species of sea anemones inhabit rocky shores, especially where there are tide pools in which they can remain submerged when the tide goes out. Anemones attached to rocks left high and dry at low tide will usually be in crevices or on the underside of rocks where it stays cool and wet. Anemones out of water generally have their tentacles retracted into their bodies to prevent drying, and may appear to be little more than wet, squishy lumps.

Sea anemones are among the most colourful marine animals in British Columbia, occurring in many shades of red, green, white, orange and pink. When they are seen in large, colourful clusters, it is easy to understand why people sometimes mistake them for flowers.