

# Beach Intertidal

Twice a day, every day, the sea around BIOT rises and falls by a metre or more. The area between low water and high water, where sea meets land is known as the intertidal zone. This is a fascinating place to glimpse BIOT's marine life (whilst only risking wet feet!).

The intertidal is a challenging place to survive, with the animals and plants living here supremely adapted to thrive. The fluctuating tide causes extremes of temperature, UV exposure, high salinity (as water evaporates from tidal pools) and drying out at low tide.

Gastropods, (marine snails), protect themselves from these physical stresses by sealing themselves into their shells, trapping water inside. Corals can only cope with short periods of exposure to air, but you will see them in deeper pools, or in the open on the very lowest tides. One coral, *Porites*, normally grows in large dome-shaped structures, reaching 2 or more metres in diameter, but in the intertidal their upward growth is prevented. As they grow outwards, their upper surface is killed by the heat, or air or UV, and they form a ring-shaped coral, or microatoll.

Other animals take advantage of pools in the reef - octopus flatten and reshape their bodies to hide in tiny crevices. These incredible animals are about 90% muscle, they are strong enough to pull apart bivalve shells – but lacking a skeleton they are also supremely supple and can slip through the tiniest holes. Their skin contains chromatophores, special cells which allow them to change their colour and pattern in an instant: this is marvellous for camouflage, but is also used by the octopus, which have excellent eyesight, to communicate with one another. Octopus can also expel clouds of ink to confuse predators.

Other animals have evolved different ways to hide from marine predators, with hermit crabs adapting by moving out of the water entirely. They retain their moisture by taking discarded gastropod shells as their homes, modifying the insides of the shells with calcium carbonate secretions to seal in water around their soft bodies. As the hermit crabs grow, they require larger shells and this creates a 'housing market'. Hermit crabs ready to move up a shell size line up next to each other, forming a chain of crabs. Once the largest crab finds an empty shell, they each rapidly move from their old shell into the newly vacated one. Watch out as well for scurrying rock crabs which also try and elude predators by hanging onto rocks just at the water's edge.

Peppered moray eels actively hunt in the intertidal, moving from pool to pool, but also slinking across the rocks in between. They regularly catch these crabs, often even leaping out of the water to take them.



Striated heron - *Butorides striatus*

Thin shelled rock crab - *Grapsus tenicrustatus*

Strawberry hermit crab - *Coenobita perlatus*

Octopus - *Octopus cyanea*

Peppered moray eel - *Gymnothorax pictus*

Sea cucumber - *Holothuria atra*



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