



Exhibit photo

### Exhibit message

Some predators use aggressive camouflage to get closer to prey before pouncing. This is ambush predation.

### Quick fact

The black and white striped mimic octopus has taken camouflage techniques to new levels. It changes its body shape and its behaviour to resemble animals such as flounder, sea anemones, sea snakes, mantis shrimps, lionfish and a stingray.

The mimic octopus may behave this way to avoid being caught by predators, or to lure prey closer so it can catch food.

### Graphic panel text

Ambush predators use aggressive camouflage to hide undetected...waiting for prey

to come closer before they **POUNCE!**

Some prey use protective camouflage to avoid being found. Other prey look like something dangerous to the predator such as a poisonous animal (Batesian mimicry).

Different types of camouflage used by aquatic animals include:

#### **Cryptic camouflage (Ornate wobbegong)**

Skin patterned in different shades or colours to blend with the background.

#### **Countershading**

Having a light coloured belly and dark coloured back so animals looking up or down through the water can't easily see their silhouette.

#### **Transparency**

Transparent body with colourful lures such as tentacles.

#### **Disruptive camouflage (Tasselled anglerfish)**

Feathery fins, bumpy skin and colouring to break up the animal's outline.

### List of camouflaged predators in the Aquatic Ambush exhibit:

Camouflage is mostly used by prey to avoid being found by predators, although many animals are both hunters and hunted and they use camouflage to sneak up on prey or hide from predators.

Animals that are shaped and coloured to resemble their environment are said to be cryptic. When an animal is harmless, but has body shape and colouring to look like a venomous animal, this is known as Batesian mimicry. By appearing to be poisonous, some animals deter attack by predators.

Countershading occurs in fish that live in upper levels of water. They are dark coloured along their back (ventral shadow) and have a silvery, reflective layer along their belly. When predators (e.g. raptors, sharks) positioned above the dark backed fish look down, the dark colouring blends in with the dark water, so the countershaded fish is difficult to see.

This countershading also gives fish a better chance of catching prey by being able to sneak up closer to prey to pounce or chase.



**Blue bottle** (*Physalia physalis*) have a transparent body with colourful stinging tentacles. These tentacles mimic baby fish and small shrimp, luring unsuspecting prey to the blue bottle or Portuguese man of war.



**Ornate wobbegongs** (*Orectolobus ornatus*) wait for food to come along. The mottled patterns and tassels of skin make it look like a mossy rock, so prey swim past without seeing the shark.

Octopus and cuttlefish usually change colour to signal mating or aggression to other octopus but sometimes they change appearance to hide from predators or sneak up on prey.



For example, the **giant cuttlefish** (*Sepia apama*) can raise small flaps of skin over its body to mimic seaweed fronds. This allows it to hide near seaweed and wait for passing prey.



The **blue-lined octopus** (*Hapalochlaena fasciata*) found on the Australian east coast is closely related to the blue-ringed octopus and has excellent camouflage while stalking prey. When provoked, it activates bright blue ring patterns to warn of its venomous nature.



**Smith's cuttlefish** (*Sepia smithi*), is a mysterious cuttlefish which lives in waters north of Australia. They partially bury themselves in the sand and their pale skin colour matches the pale sand, so they can hide and wait for prey to come closer.



**Painted anglerfish** (*Antennarius pictus*) are also called painted frogfish. They are unusually shaped with bumpy skin and bright colours to resemble surrounding rock and coral. They are harmless to humans, but deadly to unwary prey!



**Tasselled anglerfish** (*Rhycherus filamentosus*) have feathery looking flesh so they blend in with mossy rocks and seaweed. A long extension from their mouth dangles mid-water and lures prey closer to the anglerfish's mouth.



**Reef stonefish** (*Synanceia verrucosa*) have killed humans with their venom. Their dorsal fins have two grooves to release venom and humans who have survived stonefish envenomation have described it as excruciatingly painful.



**Southern bluefin tuna** (*Thunnus maccoyi*) have a silver belly, so when predators or prey look up towards the water's surface, the tuna's shadow blends in with the light streaming down. They also have dark coloured backs to help them to blend in with the water's depths, so they are hidden from animals which are positioned above them but looking downwards. This light coloured belly and dark coloured back is called countershading.



## Further information

Edmunds, Malcolm. 1974. Defence in animals: a survey of anti-predator defences.

Groves, Paul. Leafy Sea Dragons. Scientific American. December 1998. pp 85–89.

A Guide to Squid, Cuttlefish and Octopuses of Australia. Mark Norman and Amanda Reid. 2000. CSIRO Publishing.

How camouflage works  
<http://www.howstuffworks.com/animal-camouflage1.htm>

Bioluminescence <http://www.biolum.org/>

Masters of Camouflage <http://www.ms-starship.com/sciencenew/camouflage.htm>

### Blue bottle

<http://www.amonline.net.au/factsheets/bluebottle.htm>

### Tasselled anglerfish

<http://www.amonline.net.au/fishes/fishfacts/fish/rfilament.htm>

<http://www.fishbase.org/SummarySpeciesSummary.cfm?ID=14048&genusname=Rhycherus&speciesname=filamentosus>

### Painted anglerfish or frogfish

<http://www.fishbase.org/SummarySpeciesSummary.cfm?ID=10276&genusname=Antennarius&speciesname=pictus>

<http://filaman.uni-kiel.de/Photos/CollabPhotos.cfm?RequestTimeout=3600&ID=725&vCollaborator=Constantinos%20Petrinos&SortBy=genus&vStartRow=14>

### Reef stonefish

<http://www.fishbase.org/Summary/SpeciesSummary.cfm?ID=5825&genusname=Synanceia&speciesname=verrucosa>

### Smith's cuttlefish

<http://www.cephbase.utmb.edu/spdb/species.cfm?CephID=40>