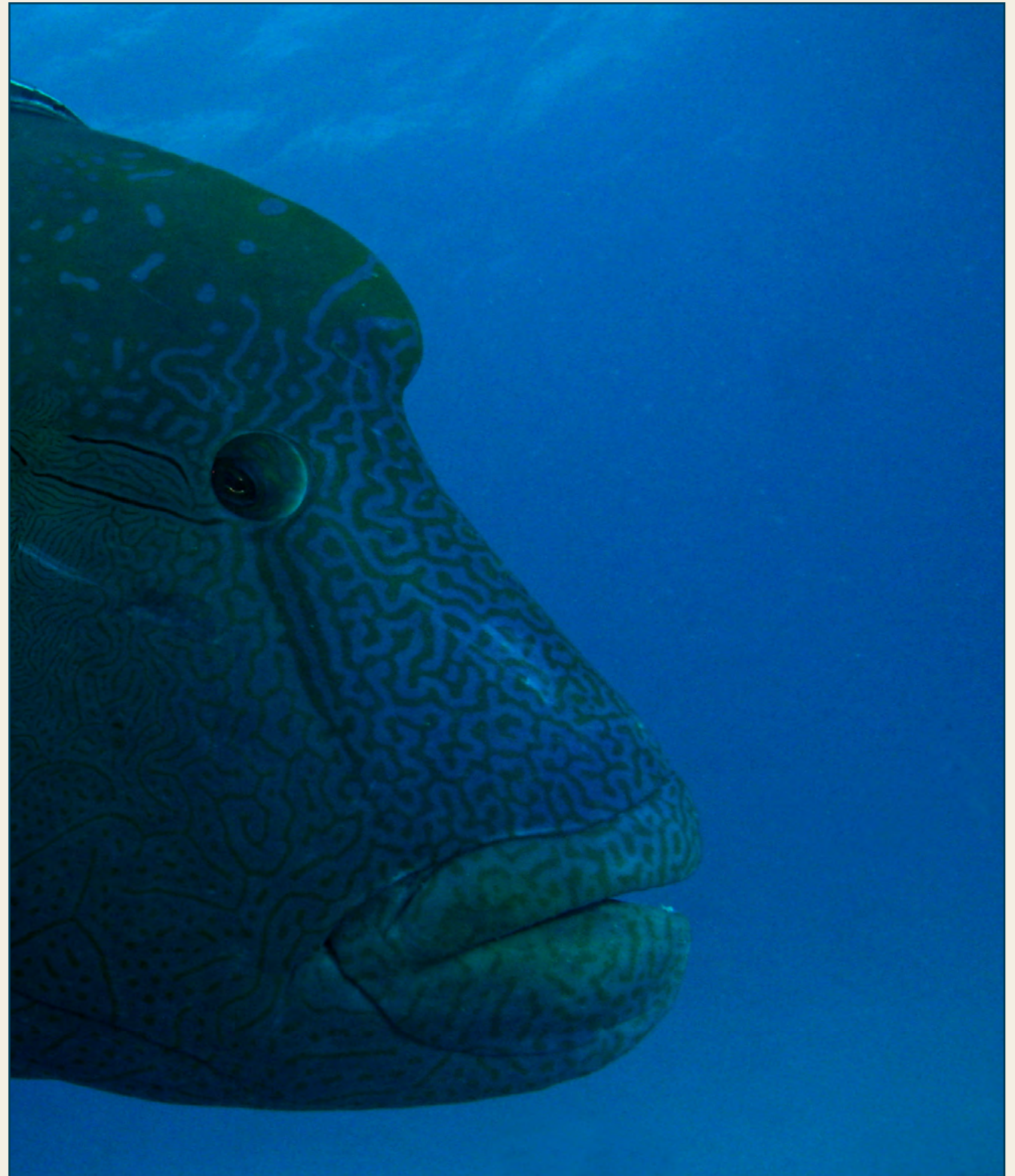


**This module provides details of the timed swim (10 minutes) component of the Eye on the Reef – Rapid Monitoring survey form.**

**Details about the marine wildlife species to keep an eye out for are also provided.**




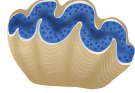


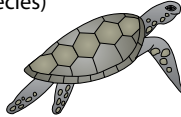
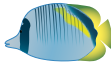
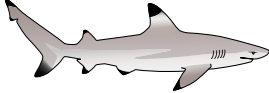






# Key points

## The key points explored in this module include:

- » Conducting the timed swim
- » Species information

<i>Timed swim (10 minutes)</i> 			<i>See over page for survey methodology</i>			
ANIMALS	TALLY	TOTAL	ANIMALS	SIZE	TALLY	TOTAL
<b>Sea cucumber</b> (all species) 			<b>Coral trout</b> (all species) 	<38cm ----- >38cm		
<b>Giant clam</b> (larger than size of hand) 			<b>Maori wrasse</b> 	<b>SEX</b> Male ----- Female	<b>TALLY</b>	<b>TOTAL</b>
<b>Anemonefish</b> (all species) 			<b>Turtle</b> (all species)  <i>* See images over page</i>	<b>TYPE</b> <b>Green Turtle*</b> ----- <b>Hawksbill Turtle*</b> ----- <b>Other (please name)</b>	<b>TALLY</b>	<b>TOTAL</b>
<b>Butterflyfish</b> (all species) 				<b>Shark</b> (all species) 	<b>Whitetip reef shark</b> ----- <b>Blacktip reef shark</b> ----- <b>Other (please name)</b>	
<b>Grazing herbivores</b> <i>See definition            over page</i> 						
<b>Cods and groupers</b> (over 50cm in length) 						



# Timed swim (10 mins)

## Completing the timed swim

Check your watch to ensure the survey takes 10 minutes.

Make sure you swim in the same habitat the whole time; e.g. on a reef slope.

A research paper has shown that snorkellers see 50% fewer fish than divers because snorkellers splash – try to swim as silently as possible.

Less is more – swim slowly and you will notice more cryptic species.

Record the animals you see within a distance at which you can identify them with confidence (based on the visibility conditions).

As well as looking either side, look ahead about every 60 seconds for the chance to see distant skittish fish before they flee.

Swim in one direction – covering the same ground from the other direction is just counting fish twice.

Pay attention to the benthos – keep in mind the general structures so you can select a representative area for the 360° survey.

Only record the animals listed on your survey form. Submit any other observations to the Eye on the Reef Sightings Network.

Ensure you follow good in-water survey practices, as outlined in Module 1.





# Timed swim (10 mins)

## Purpose

The purpose of the Rapid Monitoring survey is to collect information about reef health indicators and protected and iconic species.

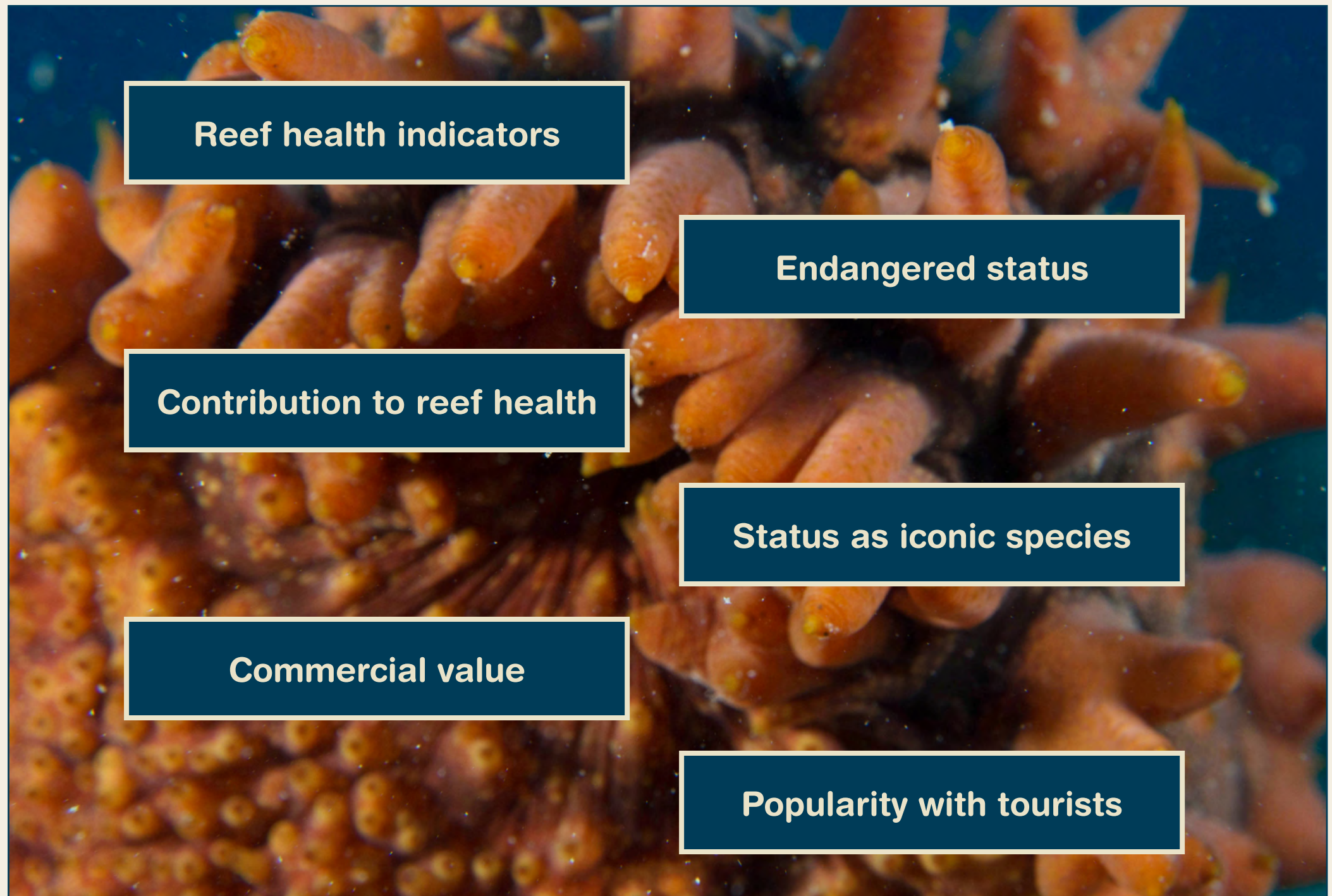
During the timed swim, you will record observations of these animals:

<p><b>Sea cucumbers</b></p>	<p><b>Giant clams</b></p>	<p><b>Anemonefish</b></p>	<p><b>Butterflyfish</b></p>	<p><b>Grazing herbivores</b></p>
				
<p><b>Cods and Groupers</b></p>	<p><b>Coral trout</b></p>	<p><b>Maori wrasse</b></p>	<p><b>Turtles</b></p>	<p><b>Sharks</b></p>
				



# Why these species?

The species listed have been chosen for a variety of reasons, including those below.





# Protected species

The Great Barrier Reef Marine Park Authority works closely with international, national, state and local agencies in the conservation and protection of biodiversity.

A protected species is a plant or animal that is protected by law and needs special management. Species may be protected at an international, national, state or local level.

**International level:** Species listed as vulnerable, endangered or critically endangered in the IUCN (World Conservation Union) Red Data Book.

**National level:** Species that are a listed threatened species, a listed migratory species or a listed marine species under the Environment Protection and Biodiversity Conservation (EPBC) Act 1999.

**State level:** Species of marine mammal, bird or reptile that are prescribed as endangered, vulnerable, near threatened and least concern under the Nature Conservation Act 1992 of Queensland.

**Local level:** Species mentioned in Table 29 of the Great Barrier Reef Marine Park Regulations 1983 (MPA).





# Protected species

All the species listed below are protected at a local level by the Great Barrier Reef Marine Park legislation. There are also other species not listed here that are protected at national and international levels.

**Some shells:**  
helmet shells, triton shells,  
tridacnid clams

**Some fish:**  
seahorses, pipefish, sea dragons,  
potato cod, Queensland grouper,  
barramundi cod, Maori wrasse,  
all groupers (*Epinephelus*) more  
than 100 cm

**Some sharks:**  
whale shark, grey nurse shark,  
great white shark, freshwater  
and green sawfish

Marine turtles

Whales and dolphins

Sea snakes

Birds

Crocodiles

Seals

Dugong



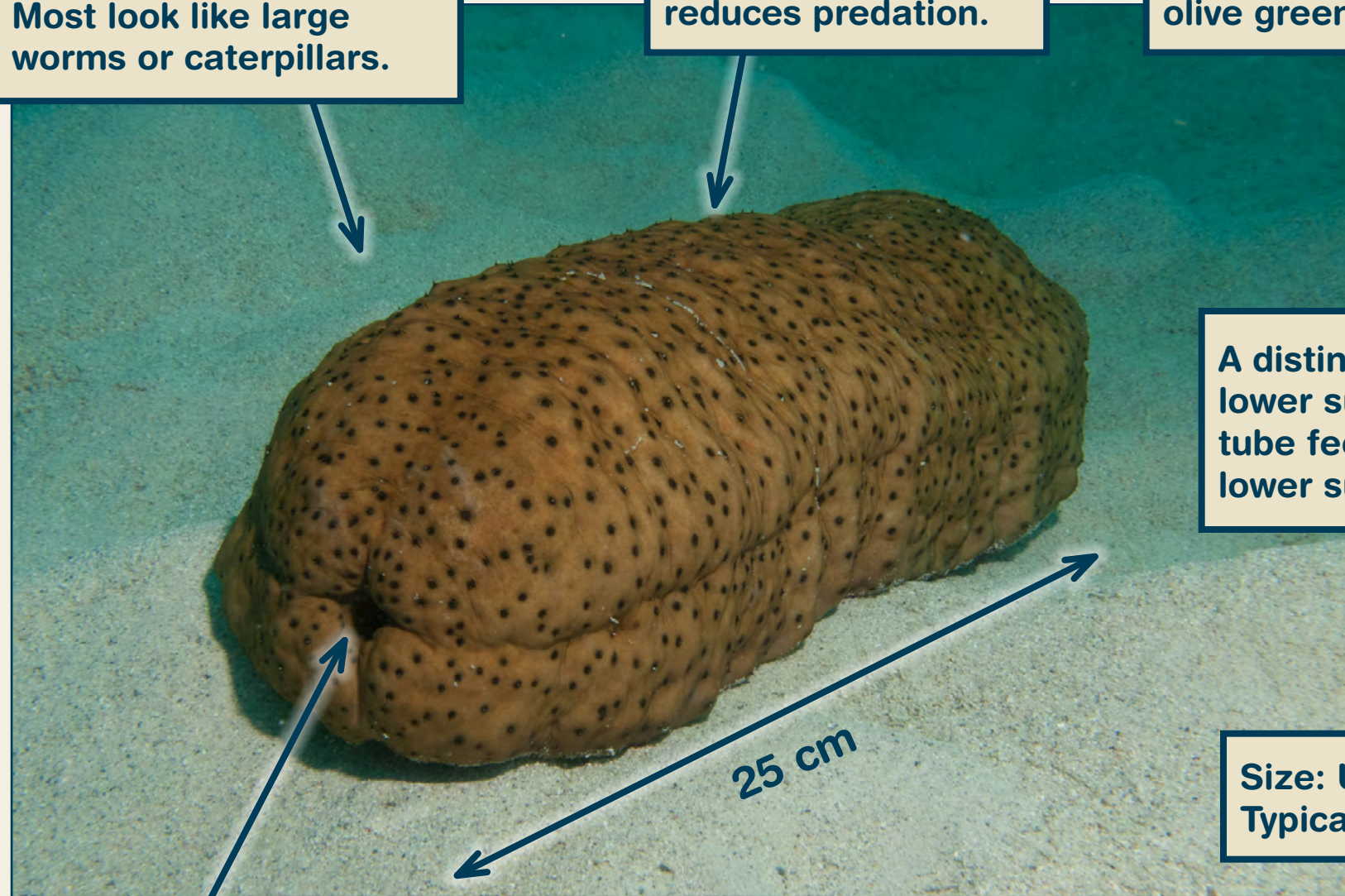
# Sea cucumber

## Description

Soft, cylindrical body. Most look like large worms or caterpillars.

Tough skin that reduces predation.

Most are black, brown or olive green in colour.



A distinct upper and lower surface with tube feet only on the lower surface.

Size: Up to 100 cm.  
Typical length: 25 cm

Breathe by taking in water through the anus.

Sea cucumbers move principally using their tube feet and rhythmic contractions of their large fleshy bodies.



# Sea cucumber

## Key facts

Roll your mouse over each label for more information.

Roll your mouse over each photo to see a large version.



# Giant clam

## Description

Largest known species of bivalve mollusc.

The zooxanthellae inhabiting the mantle provide most of the clam's nutrient needs through photosynthesis.

Colour varies from brown to purple and even electric blue, depending on the type of zooxanthellae (which also live in corals and provide their colour) inhabiting the mantle.

For this survey, record all giant clams that are larger than the size of your hand.

The shell has two parts, called 'valves'.

Extremely thick, wavy shell.

Size:  
Up to 140 cm.

Exhalant siphon to expel filtered water.

Inhalant siphon, used to draw in water that is filtered for food.



# Giant clam

## Key facts

Roll your mouse over each label for more information.

Roll your mouse over each photo to see a large version.



# Anemonefish

## Description

Size:  
Up to 16 cm.

Females are larger  
than males.

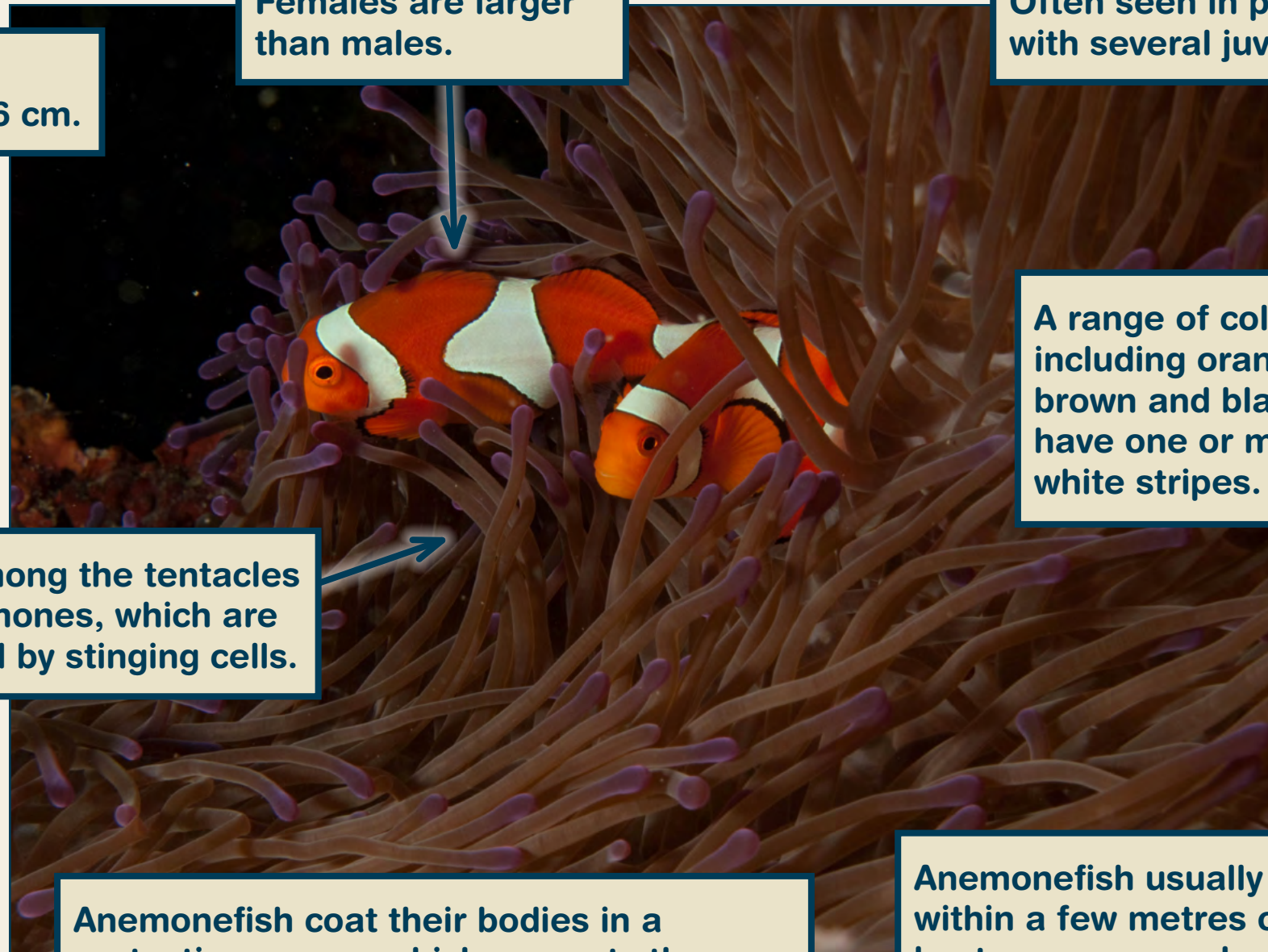
Often seen in pairs, or  
with several juveniles.

A range of colours  
including orange, red,  
brown and black; may  
have one or more  
white stripes.

Live among the tentacles  
of anemones, which are  
covered by stinging cells.

Anemonefish coat their bodies in a  
protective mucus, which prevents the  
sting of the anemone from affecting them.

Anemonefish usually remain  
within a few metres of their  
host anemone and return  
quickly when threatened.





# Anemonefish

## Key facts

Roll your mouse over each label for more information.

Roll your mouse over each photo to see a large version.



# Butterflyfish

## Description

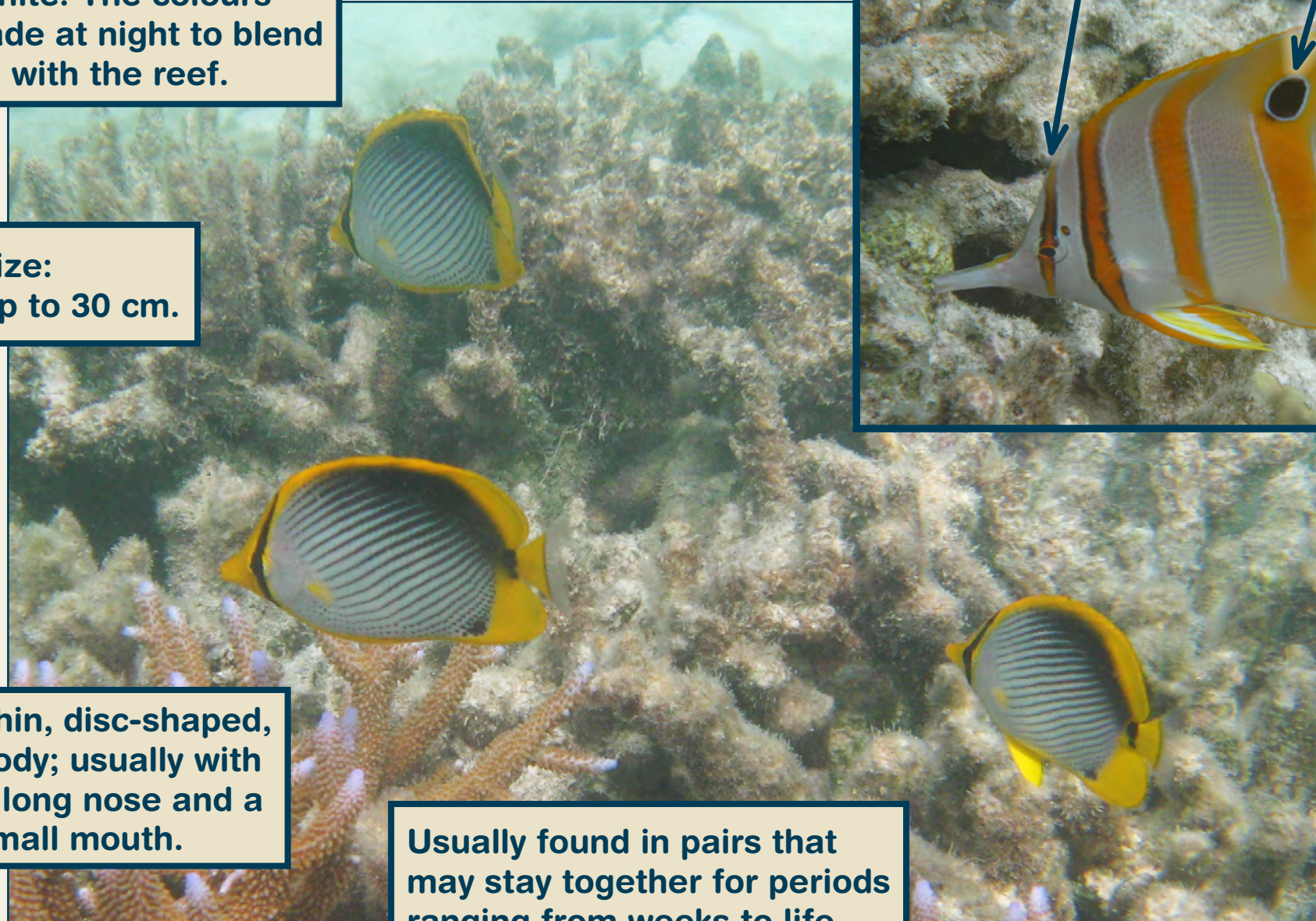
Brightly coloured, often with patterns in yellow, black and white. The colours fade at night to blend in with the reef.

Size:  
Up to 30 cm.

Thin, disc-shaped, body; usually with a long nose and a small mouth.

Usually found in pairs that may stay together for periods ranging from weeks to life.

Many have dark bands across their eyes and round, eye-like dots on their flanks. This helps to confuse predators – they can't tell the nose from the tail and don't know in which direction the butterflyfish is likely to flee.





# Butterflyfish

## Key facts

Roll your mouse over each label for more information.

Roll your mouse over each photo to see a large version.



## Description

Families of grazing herbivores include:

- parrotfishes
- surgeonfishes
- rabbitfishes
- unicornfishes
- damselfishes
- rudderfishes

Look for a school of fish that are similar in appearance and size, moving slowly along the reef, foraging or grazing close to the coral reef substrate.





# Grazing herbivores

## Key facts

Roll your mouse over each label for more information.

Roll your mouse over each photo to see a large version.



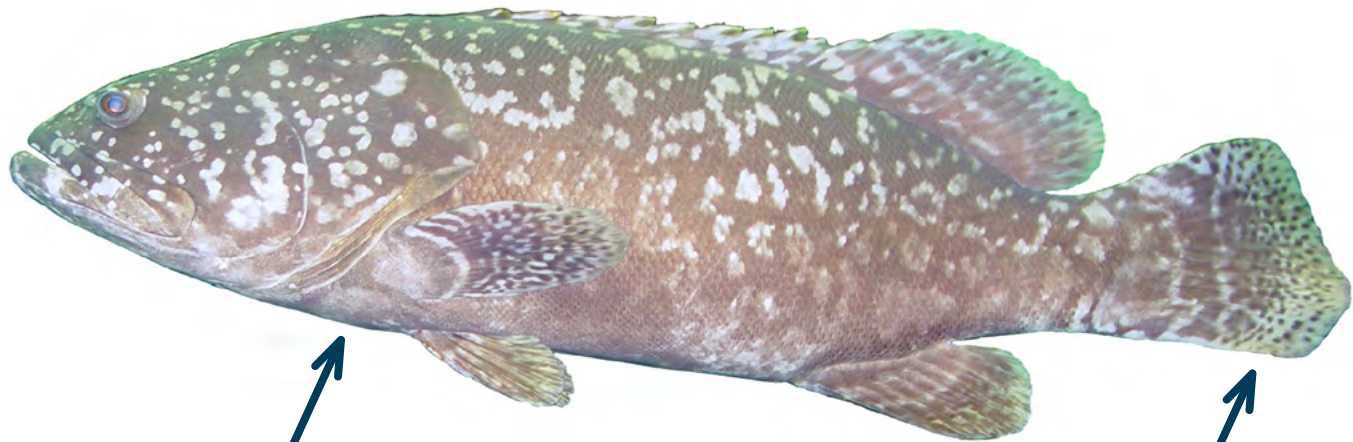
# Cods and Groupers

## Description

Both cods and groupers are generally stout, with a torpedo-shaped body, large upturned mouth with big lips and multiple rows of teeth.

For this survey, record cods and groupers over 50 cm in length.

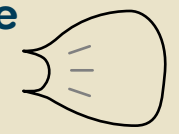
Size: Up to 300 cm in length and over 600 kg.



Medium-to-large, robust body.

Usually a single dorsal fin.

Generally, there is a C-shaped paddle tail:



Large mouth, protruding lower jaw.





## Key facts

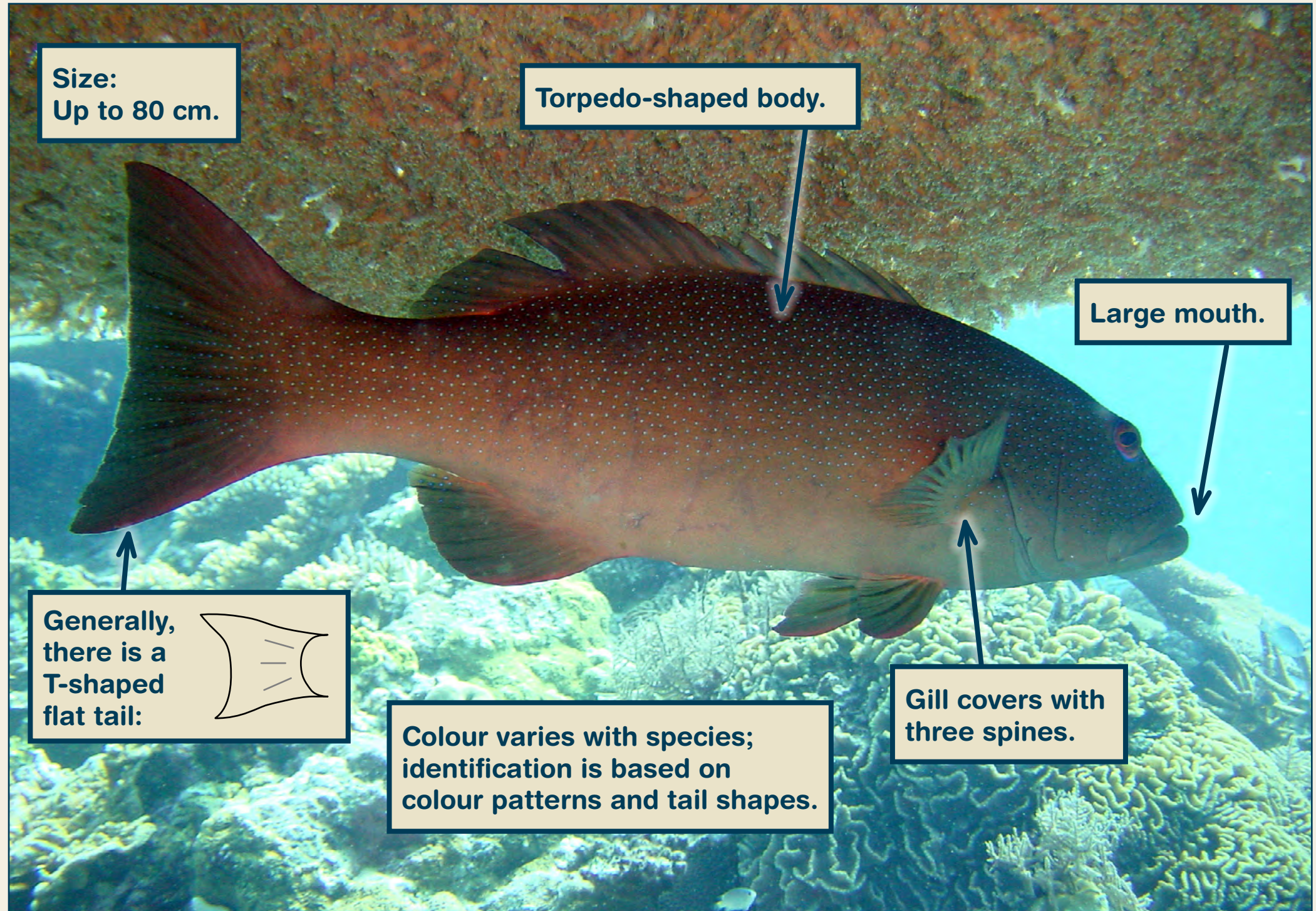
Roll your mouse over each label for more information.

Roll your mouse over each photo to see a large version.



# Coral trout

## Description





# Coral trout

## Key facts

Roll your mouse over each label for more information.

Roll your mouse over each photo to see a large version.



# Maori wrasse

## Description

Size: Up to 2.3 m and 190 kg. One of the largest reef fishes in the world.

Males have a prominent hump on the head, females usually do not.

Intricate patterns on the head.

Big lips.



Males are usually blue and green in colour. Females are more bronze with similar patterns and markings.



Female



# Maori wrasse

## Key facts

Roll your mouse over each label for more information.

Roll your mouse over each photo to see a large version.



# Turtles

The Great Barrier Reef is home to six of the world's seven species of marine turtle.

Some species such as the green, hawksbill and loggerhead are seen often. Others such as the olive ridley, flatback and leatherback are known to live in the area but are rarely seen.



**Green turtle**  
*(Chelonia mydas)*



**Hawksbill turtle**  
*(Eretmochelys imbricata)*



**Loggerhead turtle**  
*(Caretta caretta)*



**Leatherback turtle**  
*(Dermochelys coriacea)*



**Flatback turtle**  
*(Natator depressus)*



**Olive ridley turtle**  
*(Lepidochelys olivacea)*



# Green turtle

## Description

Nearly circular carapace (shell), with four pairs of costal plates. Carapace is green with reddish-brown and black, and white underneath.

Size: Up to 152 cm and 400 kg.

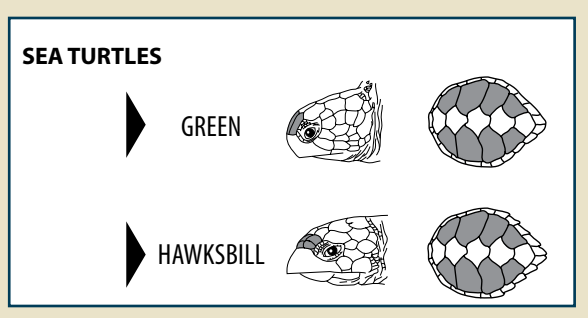
Often seen around the reef feeding on algae, or resting on the bottom.

Habitat: Subtidal and intertidal coral and rocky reefs and seagrass meadows of the continental shelf.



**Protection status**  
 Great Barrier Reef Marine Park: Protected  
 EPBC: Vulnerable  
 IUCN: Endangered

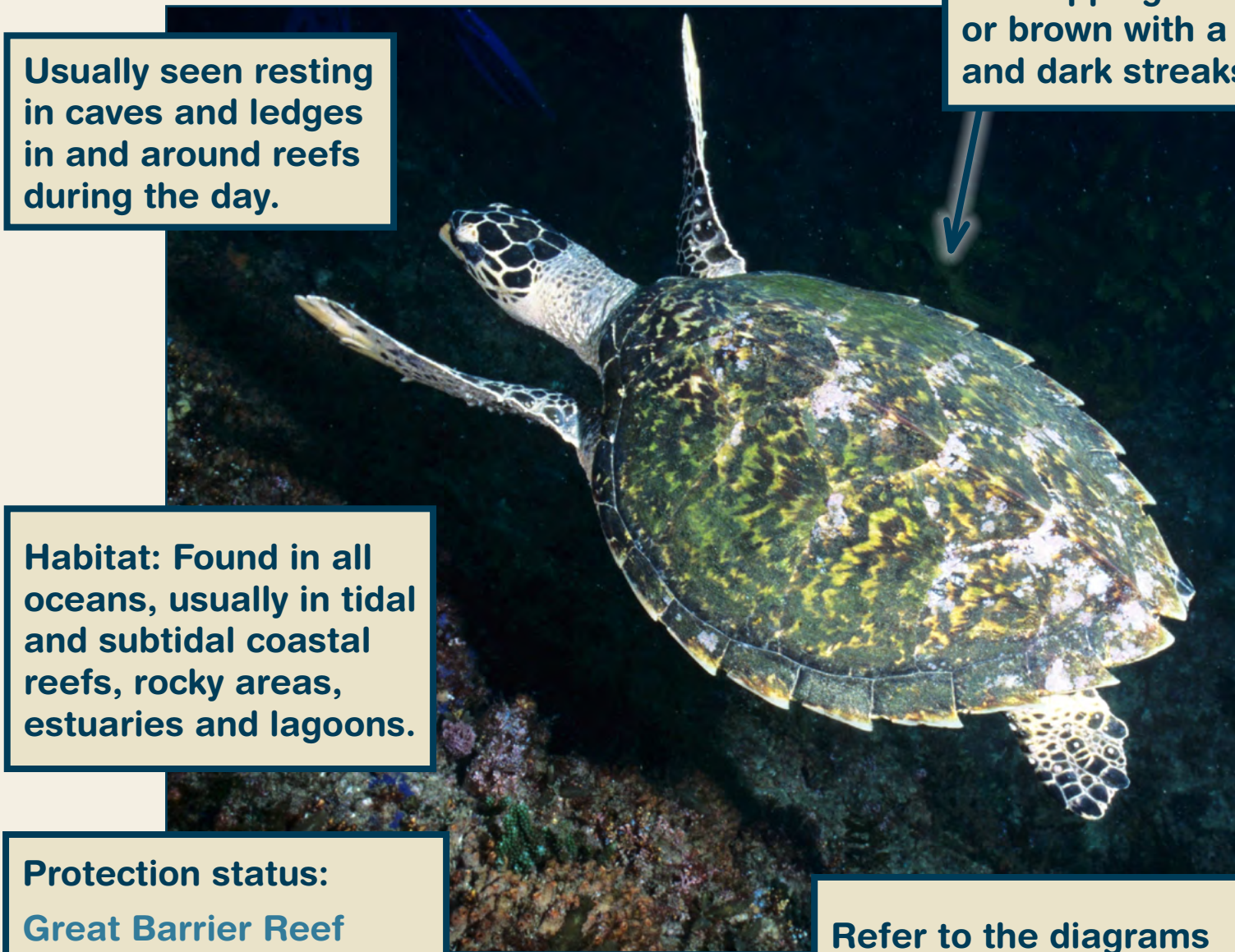
Refer to the diagrams on the back of the form to help you distinguish between green turtles and hawksbill turtles.





# Hawksbill turtle

## Description

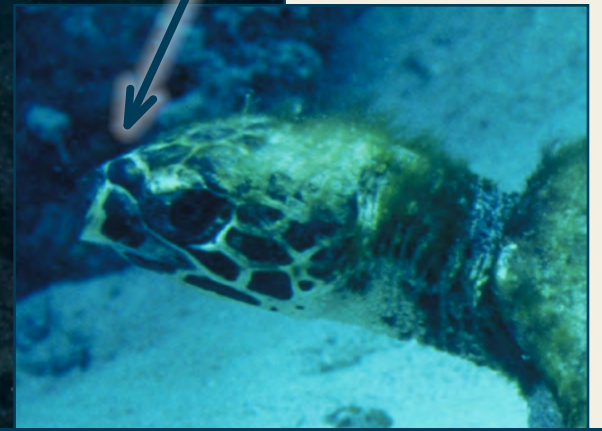


Usually seen resting in caves and ledges in and around reefs during the day.

Carapace (shell) is heart-shaped, highly domed, and has serrated edges due to overlapping scales. Shell is an olive-green or brown with a complex pattern of light and dark streaks, and white underneath.

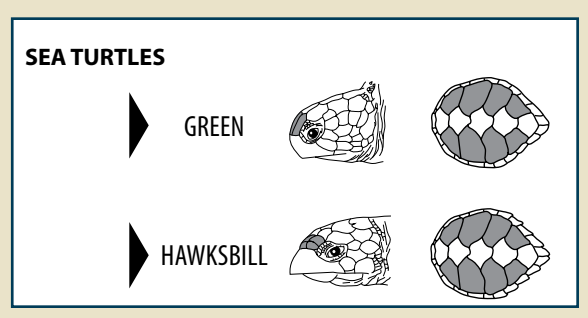
Two pairs of nasal scales give the appearance of a hawk-like beak.

Habitat: Found in all oceans, usually in tidal and subtidal coastal reefs, rocky areas, estuaries and lagoons.



Protection status:  
 Great Barrier Reef Marine Park: Protected  
 EPBC: Vulnerable  
 IUCN: Critically endangered

Refer to the diagrams on the back of the form to help you distinguish between green turtles and hawksbill turtles.





## Key facts

Roll your mouse over each label for more information.

Roll your mouse over each photo to see a large version.



Sharks can be found in a range of different habitats worldwide. There are approximately 134 species of sharks and rays found within the Great Barrier Reef Marine Park. Some species of sharks are protected in the Great Barrier Reef Marine Park – whale shark, grey nurse shark and great white shark.

The next pages focus on whitetip and blacktip reef sharks. The photos below show other species you may encounter around the reef – some are commonly seen, others are not.

Roll your mouse over each photo to see a large version.



# Whitetip reef shark

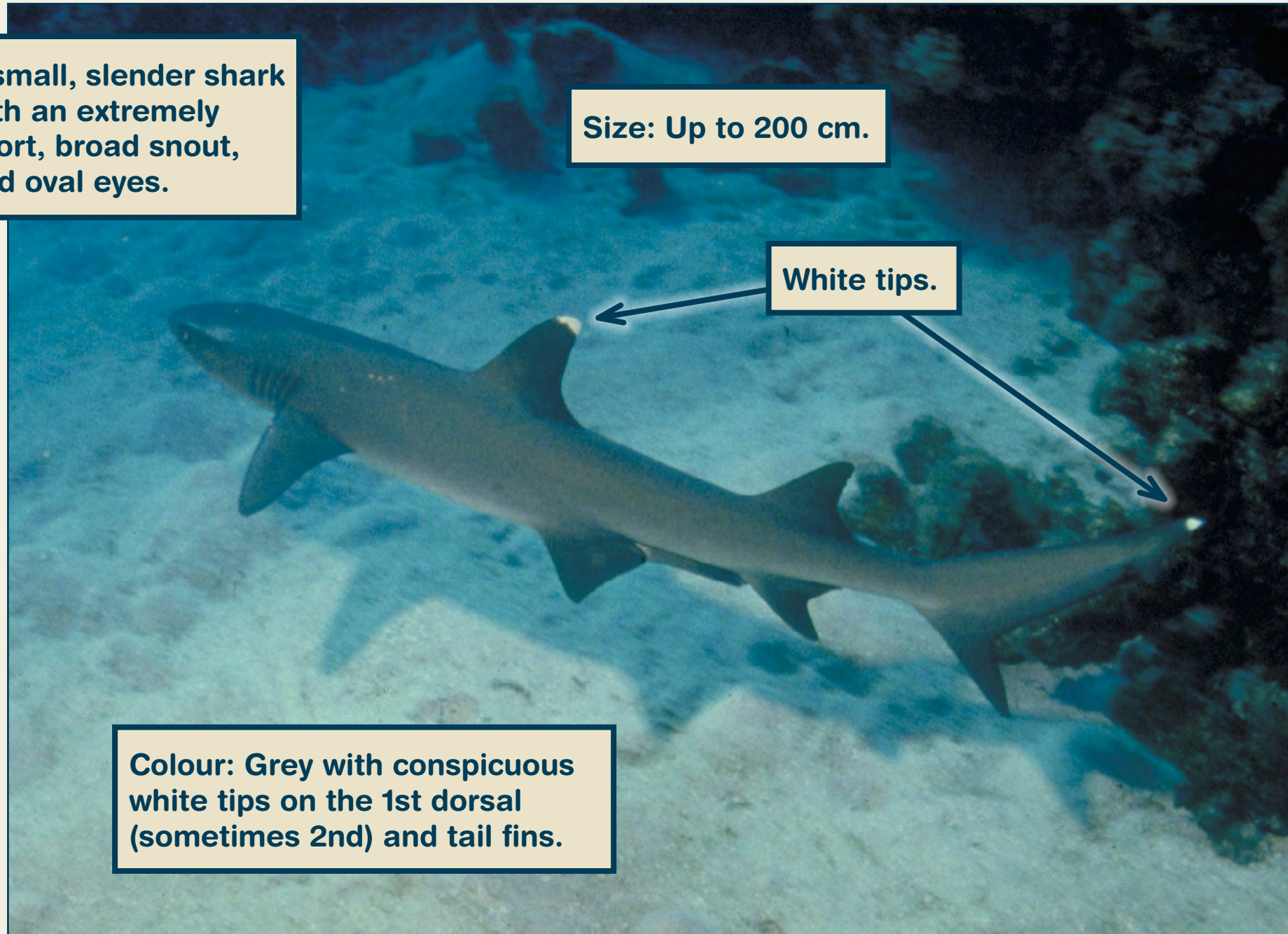
## Description

A small, slender shark with an extremely short, broad snout, and oval eyes.

Size: Up to 200 cm.

White tips.

Colour: Grey with conspicuous white tips on the 1st dorsal (sometimes 2nd) and tail fins.





# Whitetip reef shark

## Key facts

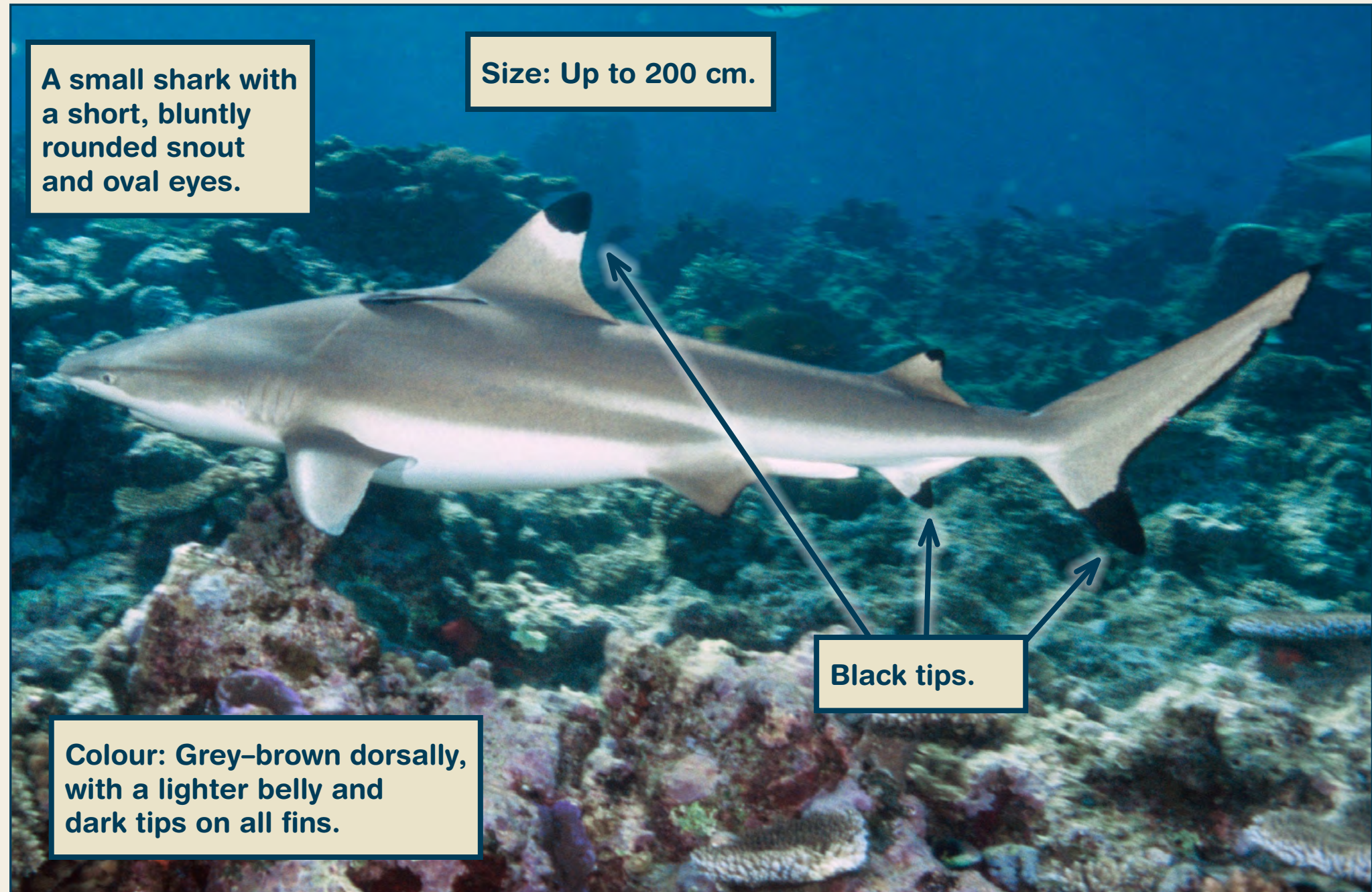
Roll your mouse over each label for more information.

Roll your mouse over each photo to see a large version.



# Blacktip reef shark

## Description



A small shark with a short, bluntly rounded snout and oval eyes.

Size: Up to 200 cm.

Black tips.

Colour: Grey-brown dorsally, with a lighter belly and dark tips on all fins.



# Blacktip reef shark

## Key facts

Roll your mouse over each label for more information.



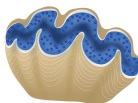
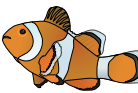
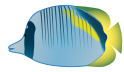


Roll your mouse over each photo to see a large version.





# Interactive Rapid Monitoring form




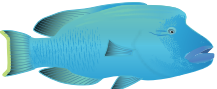
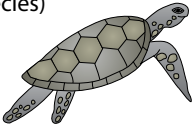

<i>Timed swim (10 minutes)</i> 		
ANIMALS	TALLY	TOTAL
<b>Sea cucumber</b> (all species) 		
<b>Giant clam</b> (larger than size of hand) 		
<b>Anemonefish</b> (all species) 		
<b>Butterflyfish</b> (all species) 		
<b>Grazing herbivores</b> <i>See definition over page</i> 		
<b>Cods and groupers</b> (over 50cm in length) 		





# Interactive Rapid Monitoring form



ANIMALS	SIZE	TALLY	TOTAL
<b>Coral trout</b> (all species) 	<38cm		
	>38cm		
<b>Maori wrasse</b> 	SEX	TALLY	TOTAL
	Male		
	Female		
<b>Turtle</b> (all species)   <i>* See images over page</i>	TYPE	TALLY	TOTAL
	Green Turtle*		
	Hawksbill Turtle*		
	Other (please name)		
<b>Shark</b> (all species) 	Whitetip reef shark		
	Blacktip reef shark		
	Other (please name)		



## Review questions

Once you are familiar with the content of this module, test your knowledge with the Module 2 review questions.

Note that you do not need to learn every detail about the key species provided in this module to complete the review questions or the final exam – you simply need to be able to identify the species.

When you have finished the review questions, move on to Module 3.

