Australian Government

Great Barrier Reef
Marine Park Authority

Be a Marine Biologist for a Day

Information and activity booklet
Years 11 and 12

ANSWERS

How can I help the Great Barrier Reef?

One way I can help the reef is to collect data for the Great Barrier Reef Marine Park Authority (GBRMPA) as a citizen scientist.

I can help to count animals for the Great Barrier Marine Park Authority. They have a citizen science initiative called Eye on the Reef. I can conduct an Eye on the Reef activity on my excursion called a Rapid Monitoring survey. When I conduct a Rapid Monitoring survey on my excursion, I will be counting animals that will help the Great Barrier Reef Marine Park Authority look after and protect them.

The purpose of the Rapid Monitoring survey is to collect information about reef health indicators, protected and iconic species and emerging reef health issues. The Rapid Monitoring survey includes a 10 minute timed swim and a more advanced 360° survey. I will be doing the 10 minute timed swim.

The Great Barrier Reef Marine Park Authority will tell me which animals to count on the Rapid Monitoring survey form (the form is also in this activity book or can be downloaded on the GBRMPA website). There are 10 indicator species to count. I have 10 minutes to count them, swimming slowly in one direction. But I don't need to count them all. I only have to count one (or the ones that my teacher tells me to count), with my buddy pair.

I will record my count on a waterproof tally sheet on a clipboard with a waterproof pencil (either provided by my teacher or the reef guides). I am counting the (animal/name). When we all finish counting, our Reef Guide will help us pool everyone's data together and show us how to fill in the Rapid Monitoring survey form properly before going back to school.

When we get back to school, my teacher will help us to login to the Great Barrier Reef Marine Park Authority Eye on the Reef website so we can let them know how many we all counted.

I can also download the Eye on the Reef app and record what I saw on my excursion. Or I can use it to check out some of the really cool animals I saw!

What is citizen science?

Citizen science is when citizens participate in scientific research.

The Great Barrier Reef is a very big place to monitor.

Data from citizen science initiatives such as Eye on the Reef helps organisations like the Great Barrier Reef Marine Park Authority (GBRMPA) monitor and manage the reef. We are counting these animals in particular for several reasons. They could be a reef health indicator, endangered, contribute to reef health, iconic, commercially valuable and/or popular with tourists.

The Rapid Monitoring survey data is the early warning component of the Eye on the Reef citizen science program.

The Rapid Monitoring survey includes a 10 minute timed swim.

We will be counting 10 indicator animals over a 10 minute timed swim in one direction. We will be snorkelling on the reef! I am so excited.

I need to bring this activity book on the excursion. There are lots of questions to answer about the animals we are counting. The questions are very similar to what we are learning this year at school. The Great Barrier Reef Marine Park Authority made sure these activity books aligned with the syllabus for my grade. I am allowed to answer some of the questions before the excursion, some during the excursion and some after the excursion. We get to check all our answers when we get back to school after the excursion. My teacher calls it ‘part 3’ of the *Be a Marine Biologist for a Day* program. Part 1 is before the excursion, part 2 is during the excursion and part 3 is after the excursion. This activity book is used across all 3 parts.

When I visit the reef again, I will be able to do a Rapid Monitoring survey on my own because I will know what to do.

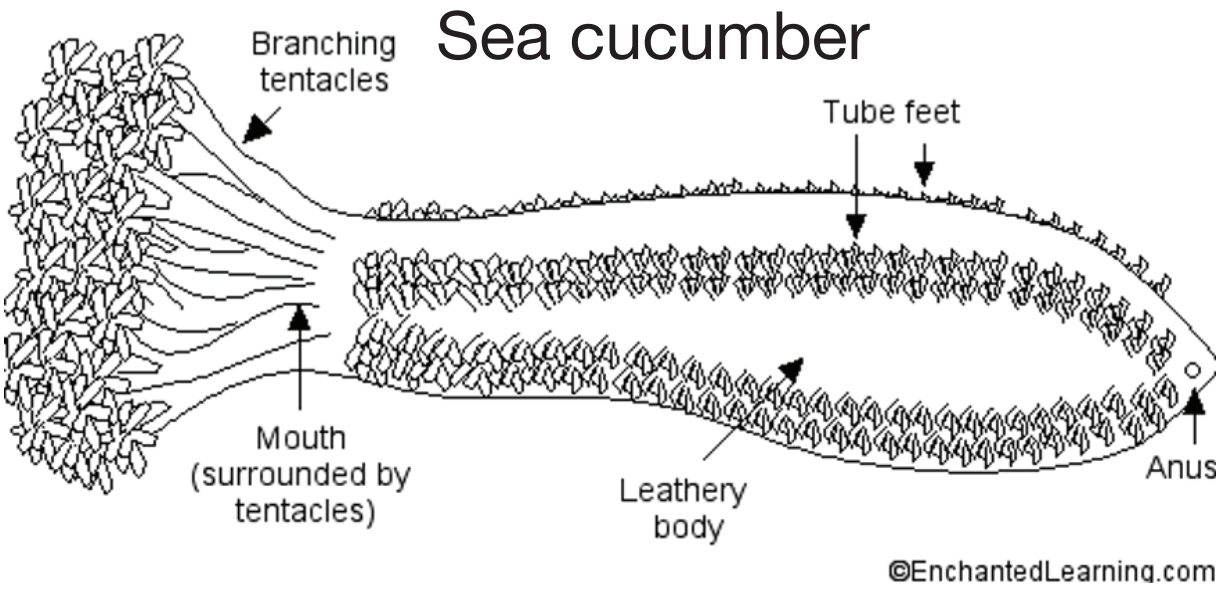
I am a citizen scientist and I am helping the Great Barrier Reef!

Ideas for conducting sea cucumber research.

- Why are they called the ‘vacuum cleaners of the sea’?
- What is their functional contribution to reef health?
- What is a rough estimate of the population density of sea cucumbers: about how many are there per square meter?
- What are the relative numbers of various species of sea cucumber?
    - List the names of the species in order of abundance.
    - Express the relative abundance as a ratio.
- Examine the distribution of each type of sea cucumber.
- Every time you see a sea cucumber, note which species it is and the habitat in which it lives. Record your findings.
- Think about the physical differences between the various habitats. Which habitat seems to provide the most and least protection from light and desiccation?
- Which is best and least endowed with loose sediment particles?
- Which seems most exposed to wave action?
- What appears to be the habitat, or range of habitats, favoured by each species? Can you recognise any adaptation(s) which especially seem to fit each species for the habitat is occupies?
- Where one or more species occupy the same habitat, to what extent do you think they might be competing with each other?
- What are their external features? How do they feed? How do they move? What do they react to? How does it react? Does it use camouflage?
- Are there other sea cucumbers the same nearby? Is there a particular habitat each species of sea cucumber prefers?
- Is there a significant difference in sea cucumber abundance between the windward and leeward sides of a reef?
- Is there a significant difference in sea cucumber abundance between the reef flat and the reef crest?
- Is there a significant difference in sea cucumber abundance between north-facing and south-facing parts of the reef?
- Is there a significant difference in sea cucumber abundance between sand-dominated benthos and coral-dominated benthos?
- Is there a linear relationship between sea cucumber abundance and percentage coral cover?
- Is there a linear relationship between sea cucumber abundance and sand grain size?
- Is there a linear relationship between sea cucumber abundance and grazing herbivore abundance (who’s poop makes sand)?
- Is the *trepang* industry sustainable?

Sea cucumber

Draw a labelled diagram of a sea cucumber below.



https://www.enchantedlearning.com/subjects/invertebrates/echinoderm/seacucumber/printout.shtml

Why count sea cucumbers? What is their functional role?

Sea cucumbers are the vacuum cleaners of the sea.

Sea cucumbers = clean sand = healthy Reef.

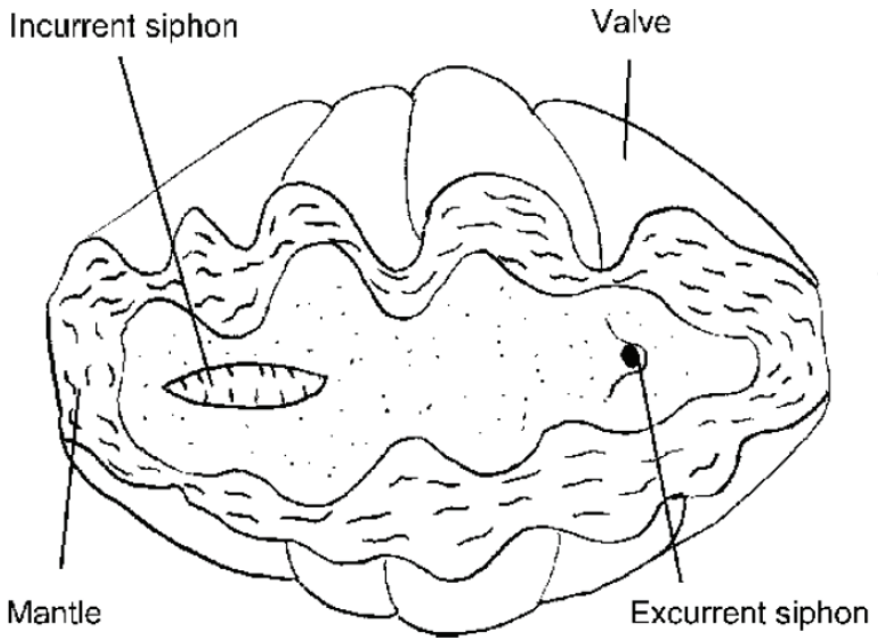
Ideas for conducting giant clam research.

- Count the number of clams along a transect or quadrat (the 10minute timed swim counts as a quadrat).
- When you come to a giant clam, observe its size, mantle colour, location, and whether it is embedded in the coral or not. Then move so your body shadow falls across the clam. Estimate how long the giant clam takes to close.
- Are the shells still slightly apart? If so, by how much?
- Are there several species of clam present? Why do you think there are different species?
- Estimate the average density of clams on the reef.
- Estimate the ratios of different colours of clams.
- Can you see any regular patterns or trends in the distribution of giant clams on the reef flat?
- Can you see any regular patterns or trends in the distribution of different coloured giant clams?
- Can you put forward any hypotheses about why giant clams are distributed the way they are?
- What causes the colour in the giant clam mantle? How slow does it grow?
- How old do they get?
- If they reproduce by spawning, how far away is the next clam? How far would the eggs and sperm need to travel to reach the next clam?
- How strong are the currents in that area? How big are the tides and tidal flows?
- Are there similar clams on nearby reefs?
- How susceptible are the giant clams to damage from strong wind and waves?
- How deep are most of the clams? Why are they found in that depth of water? Note: giant clams host zooxanthellae.
- Make a histogram showing frequency of sizes and Classes of giant clams you've seen. Postulate why there are different sized giant clams.
- Is there a significant difference in the abundance of giant clams from one zone to the next?
- Is there a significant difference in the size of giant clams from one location to the next?
- Is there a significant difference in the abundance of giant clams from deep water to shallow water?
- Is there a significant difference in the colour of giant clams from one location to the next?
- Is there a linear relationship between the abundance and the size of giant clams?
- Is there a linear relationship between the number of giant clams and the distance from shore?
- What impact has the harvesting of giant clams had on giant clam abundance?
- Why are they listed as endangered?

Giant clam

>30cm

Draw a labelled diagram of a giant clam in the box below.



https://meilin5giantclam.wordpress.com/2016/10/20/is-this-i-think-it-is-no-wait-what/

What causes giant clams to bleach? Explain.

Giant Clams (like coral) share a mutualistic symbiotic relationship with an algae called zooxanthellae.

They live in the mantle and carry out photosynthesis.

The byproduct of photosynthesis is oxygen.

A stress event such as a heat wave causes the zooxanthellae to stress, produce toxic levels of oxygen, and are expelled by the clam.

Without their colourful zooxanthellae, the mantle tissue is transparent. Making the clam appear ‘bleached’.

If the temperature cools, and the clam is still alive, the zooxanthellae returns.

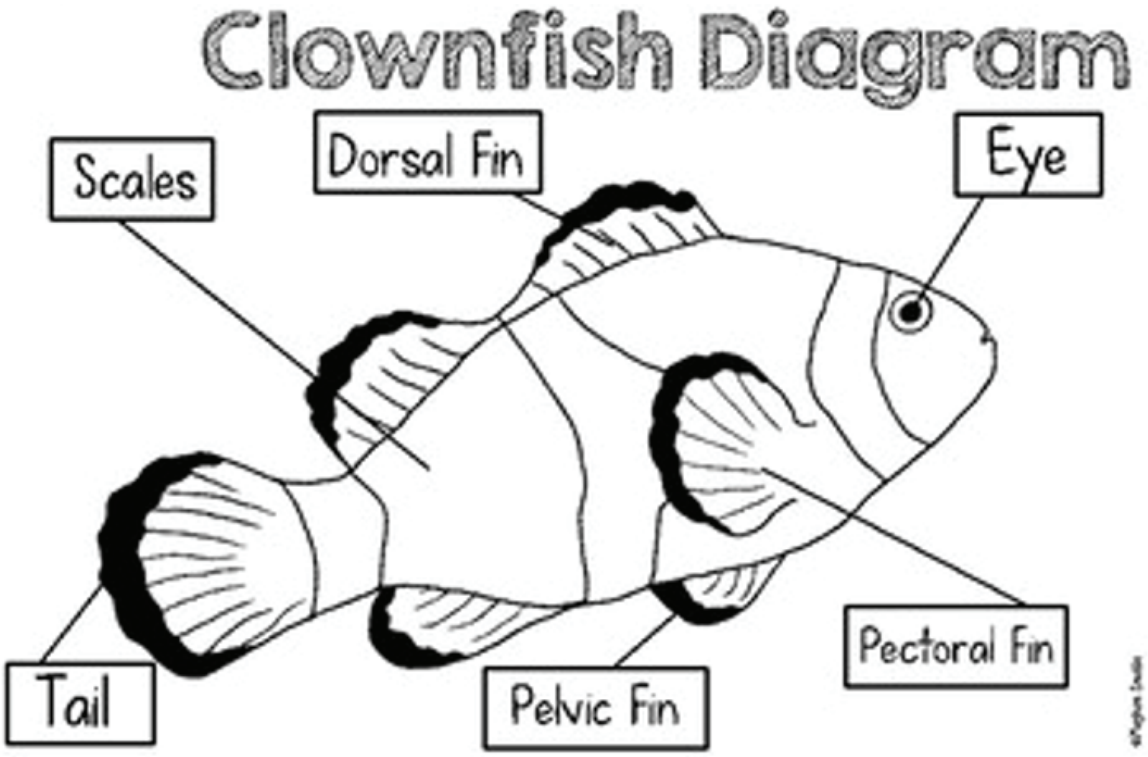
Ideas for conducting anemonefish research.

Aim: To investigate the association between anemones and anemonefish.

- Visit a particular anemone while snorkeling on the reef.
- Record the size of the anemone and sketch the species of fish associated with it for later identification.
- Record the numbers of anemonefish present. Is there a dominant member of the group?
- Do the anemonefish touch the anemone? If so, how do they move when doing this?
- Does the anemonefish appear to concentrate in any particular region of the anemone?
- Does the anemone react to the movements of the fish?
- What evidence, if any, do you see of either the anemonefish or the anemone feeding?
- How far do the anemonefish move from the anemone?
- What do the anemonefish do when away from the anemone?
- What behaviour is displayed by the anemonefish to other fish species?
- How have the fish reacted to your presence and movements?
- Are there other anemonefish present?
- Are particular types of anemonefish associate with particular types of anemones?
- Can you recognise common patterns in the behaviour of the anemonefish at the anemones you observe?
- Did you notice any other symbiotic associations on the reef? Look closely. Sometimes there are shrimp or crabs in the anemone. If you see them, do they appear to have adapted to live in the anemone and nowhere else?

Anemonefish

Draw a labelled diagram of an anemonefish below.



https://www.teacherspayteachers.com/Product/Clownfish-Diagram-Freebie-3134585

Anemonefish are hermaphrodites. What does this mean?

It means they produce both male and female gametes.

The biggest anemonefish is always the female. All the others are male.

The two largest anemonefish are the mating pair.

When the female dies, her male partner turns into a female, and the next biggest male takes his place.

Ideas for conducting butterflyfish (or any fish) research.

Follow a friendly fish:

- Whilst snorkelling, follow a particular fish quietly. Observe its feeding behaviour. How much searching and 'working' for food is performed? What structural adaptations possessed by the fish help it to find and take its food?
- Observe its general structure. Note its size, colour patterns (exactly), relative size and position of fins, size, shape and position of mouth.
- Observe the following:
    - method of locomotion (note use of all fins, tail etc.).
    - method of catching/obtaining food and ingesting
    - method of perceiving and reacting to the environment - sense organs, response to change (waves/depths/other fish/other groups/you), special behaviour (e.g. territorial, special relationships – commensal, symbiotic, parasitic).
- After your snorkel, identify your fish.

Colour patterns in reef fishes:

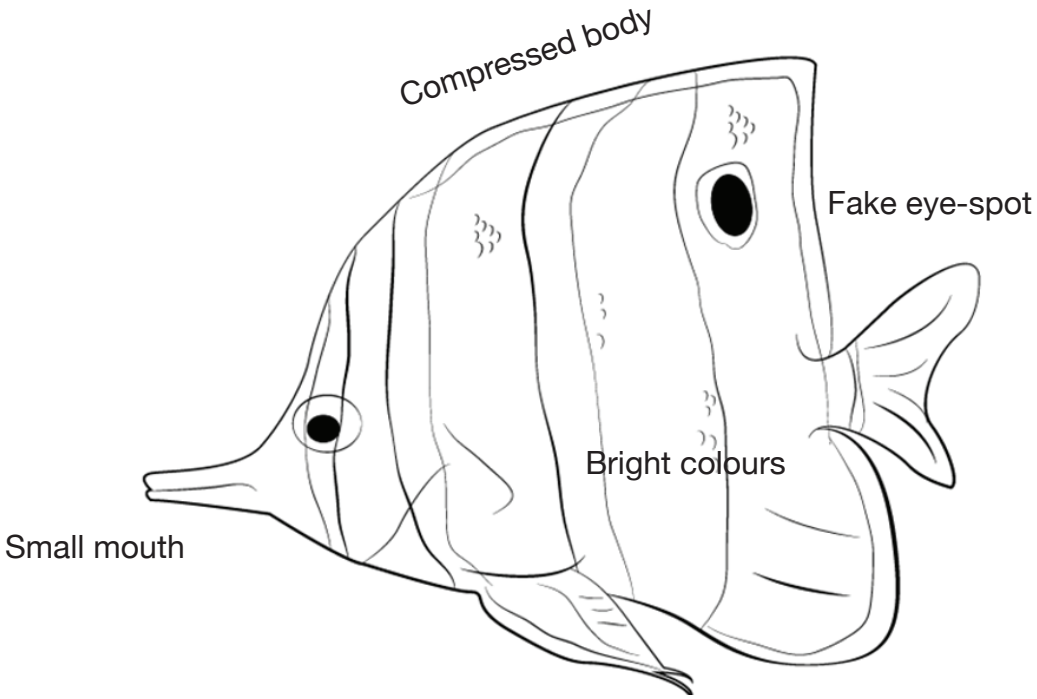
- Concentrate only on colour and pattern (as opposed to identifying the fish). What sort of pattern was most common? What colours were most common? Why do you think there are so many different patterns and colours? Why do you think particular types of patterns are more common? How do you think each pattern helps species survival?
- Try to clssify the patterns into groupings, e.g. camouflage, counter shading, disruptive colouring.
- Do reef fishes have colour vision?
- Identify some of the fish you have observed.
- Do they change colour when they change sex, habitat or mature?

Movement in fishes

- Where does it live (e.g. among coral, close to coral?), what does it feed on? (is it a herbivore? Is it a corallivore?).
- What is the main type of locomotion you observe (stationary, maneuvering, cruising, fast swimming?).
- Which parts of the fish are involved when it moves?
- Is the movement oscillation or undulation?

Butterflyfish

Draw a labelled diagram of a butterflyfish below.



https://www.drawingtutorials101.com/how-to-draw-a-butterflyfish

How do Butterflyfish amplify sound?

Their swim bladder is linked to their lateral line.

Ideas for conducting grazing herbivore research.

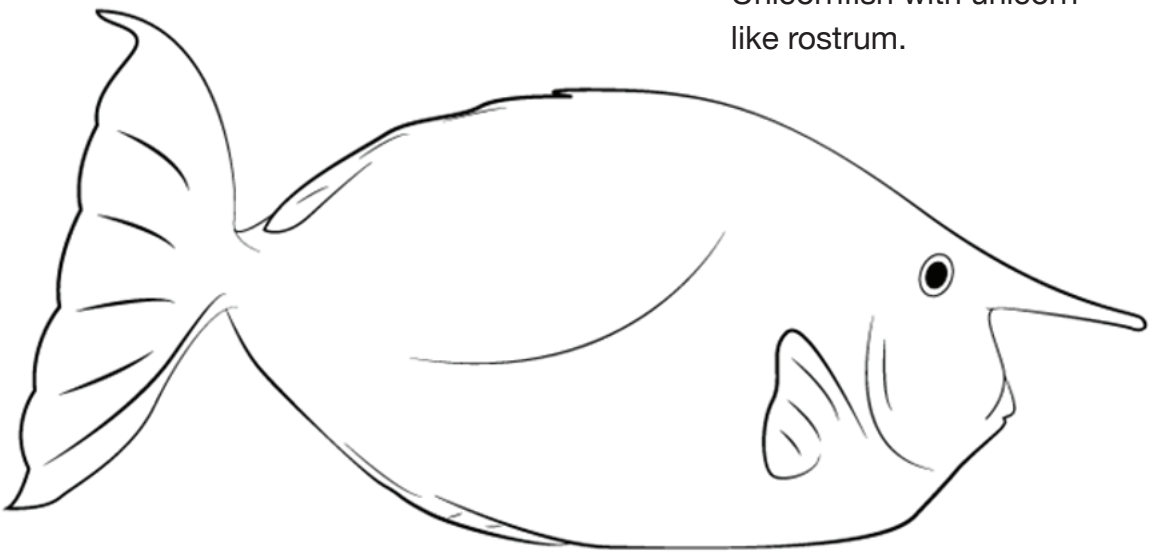
Pursuing a parrotfish

- Before going into the water, put a copy of the outline drawing of a parrotfish on your underwater slate.
- Snorkel across the reef flat and find a school of parrotfish. Lie very still in the water and listen. What do you hear? Can you observe where these creatures have been feeding?
- As the school moves on, examine the coral more closely. Follow the school and try to observe how many individuals are present. Are they all the same colour? Are they all the same species? Are they all the same size?
- As you follow the school, try to observe what types of corals are grazed. Make as many observations as you can on behaviour and factors which you believe are important in the life of a parrotfish.
- Repeat the observations for low tide vs high tide. Make comparisons between the behaviour of the school at low tide and at high tide. Do the fish appear to be as active? Are the schools larger or smaller? Is feeding activity as intense?
- Do you believe parrotfish would have an effect on the growth rate of corals? What would limit the distribution of parrotfish? How would a crown-of-thorns starfish plague affect parrotfish populations on a coral reef? How would this affect the predators of parrotfish?
- Is there a significant difference in grazing herbivore abundance between the reef flat and the reef slope?
- Is there a significant difference in grazing herbivore abundance between areas of high coral cover and low coral cover?
- Is there a linear relationship between grazing herbivore abundance and percentage hard coral cover?
- Is there a linear relationship between grazing herbivore abundance and percentage macroalgae cover?

Grazing herbivores

Parrotfish / Surgeonfish / Unicornfish / Rabbitfish

Draw a labelled diagram of a grazing herbivore below.



https://www.drawingtutorials101.com/how-to-draw-a-whitemargin-unicornfish

Why is it important to have grazing herbivores?

Grazing herbivores are like the lawn-mowers on the reef. They play a very important role. They eat algae that competes with coral for space. By limiting the growth and spread of algae, coral reefs stay healthy and resilient.

Ideas for conducting research on cods and groupers.

- What is the preferred habitat? Does it stay at a particular location or does it move about?
- What is it eating? How does it obtain its food? What is the type of food it is eating?
- How thick is the caudal peduncle?
- How does its structural adaptations assist its preferred feeding strategy?
- Is there is significant difference in the average size of a particular species of cod or grouper between now and 50 years ago?
- What is the relationship between the size of the fish and the age of the fish? At what age does a cod or grouper change gender?
- What is the benefit of being a large male (as opposed to a large female)?
- How does it move? Estimate its speed. Does its speed change from when it is resting, feeding, being cleaned?

Cleaning Stations

Snorkel until you find a cleaner station. Coral bommies are likely areas. Observe a fish being cleaned. What parts of the fish are being cleaned? Study the behaviour of the cleaner wrasse inviting the fish to be cleaned and the behaviour of the fish receiving the cleaning.

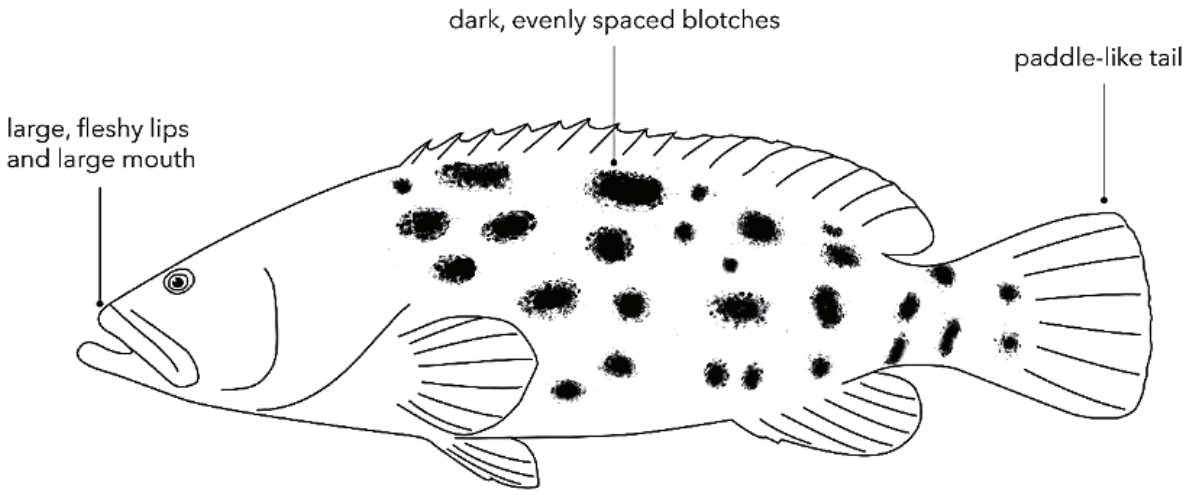
a) Observe the movements of the cleaner wrasse (or cleaner shrimp) before cleaning begins.
b) Observe the behaviour of the fish about to be cleaned.
c) Observe the range and territory of the cleaner wrasse (or cleaner shrimp).

Did different species show similar behaviour before cleaning commenced? What factors might influence the size and position of a cleaning station? What is the role of the cleaner wrasse in the coral community?

Cods and groupers

>50cm

Draw a labelled diagram of a cod or grouper below.



https://marinewaters.fish.wa.gov.au/resource/potato-cod/

Are Queensland grouper, potato cod and barramundi cod protected in the Great Barrier Reef Marine Park?

Yes.

What should you do if you catch one?

Use best practice methods to release it. E.g. avoid lifting into the boat.

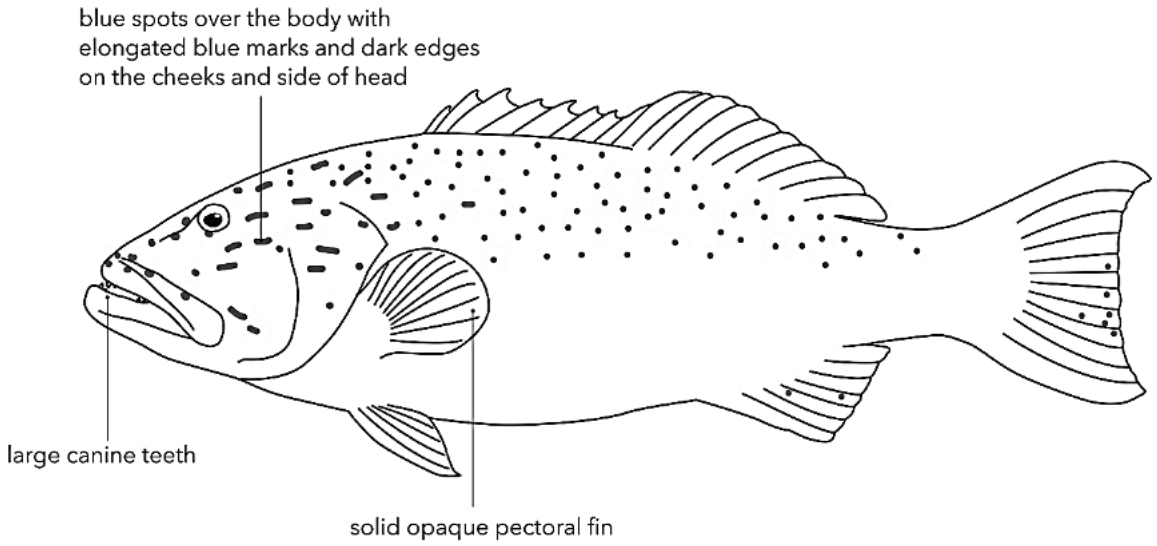
Ideas for conducting research on coral trout.

- How many coral trout are caught each year in Queensland waters?
- What is the Total Allowable Catch (TAC)? Is the species at risk of depletion?
- How is the fishery that catches coral trout managed? Are there any limits to how many coral trout a recreational angler can catch and keep?
- How many coral trout are caught by recreational fishers compared to commercial fishers?
- What restrictions are in place for commercial fishers targeting coral trout species?
- What species are known as ‘coral trout’?
- Why do cyclones affect the abundance of coral trout?
- Do coral trout favour a particular habitat or environment?
- What do they eat?
- Where do they hide?
- How do they reproduce? Do they change gender when they reach a certain size?
- What is the evolutionary advantage of this reproductive strategy?
- How long does it take to reach maturity? What size are they able to reproduce?
- How long do they live for?
- How big do they grow to?
- What is ciguatera poisoning? What causes ciguatera poisoning? What is the risk of ciguatera poisoning if you eat a large coral trout? What happens to you if you get ciguatera poisoning? Is ciguatera poisoning common? Can you only get ciguatera poisoning in the tropics?
- Is there a significant difference in the total allowable catch of coral trout between now and 20 years ago?
- Is there a significant difference in the average size of a coral trout caught today versus 20 years ago?
- Is there a significant difference in the abundance of coral trout between a coral reef with high rugosity vs low rugosity?
- Is there a linear relationship between the abundance of coral trout and depth?
- Is there a linear relationship between the abundance of coral trout and the severity of cyclones?

Coral trout

<38cm / >38cm

Draw a labelled diagram of a coral trout in the box below.



https://marinewaters.fish.wa.gov.au/resource/fact-sheet-barcheek-coral-trout-2/

What is the legal size of a coral trout?

At least 38cm.

What penalties apply for keeping an undersize fish?

Hundreds to thousands of dollars.

Why is it bad to eat extra-large reef fish?

You risk getting very sick with ciguatera poisoning. Large fish, including coral trout >6kg bioaccumulate a toxin from eating lots of smaller contaminated fish. Eat it and you get very sick.

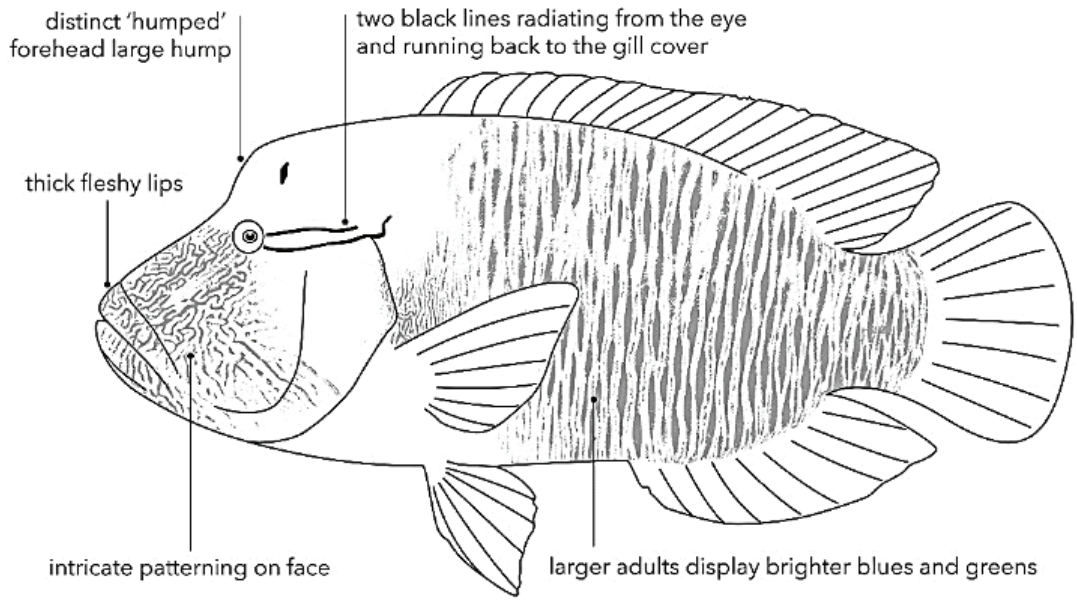
Ideas for conducting research on Maori wrasse.

- How important are Maori wrasse to the tourism industry? How much money do they generate from tourists paying to swim with a Maori wrasse? How does that compare to the amount of money that is paid to keep them in aquaria?
- How much would you pay to swim up close to a Maori wrasse?
- How much do you think people pay to keep them as pets in their aquarium?
- Are they protected outside the borders of the Great Barrier Reef Marine Park?
- What is the difference between a male and female Maori wrasse? Why do they change gender? When do they change gender?
- What is the evolutionary advantage of changing from female to male?
- How do they reproduce? How do they find a mate? Do they form spawning aggregations? How far do they travel?
- Do they stay in the same area for the entirety of their life?
- Why are Maori wrasse endangered?
- What do they need to survive?
- How long do they live for, and at what age do they need to be to reproduce?

Maori wrasse

Male / Female

Draw a labelled diagram of a male Maori wrasse below.



https://marinewaters.fish.wa.gov.au/resource/humphead-maori-wrasse/

Where do Maori wrasse typically live?

Maori wrasse occupy limited home ranges.

Adults swim across the reefs during the day, resting at night in caves and under coral ledges.

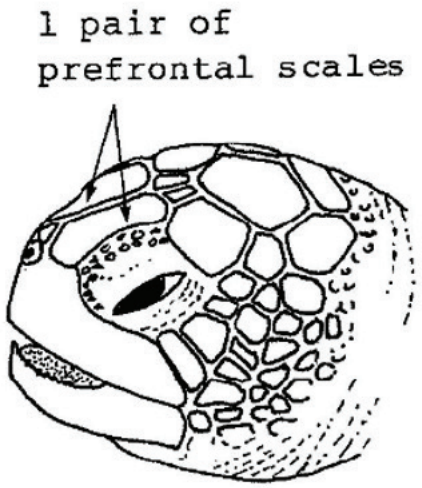
Ideas for conducting sea turtle research.

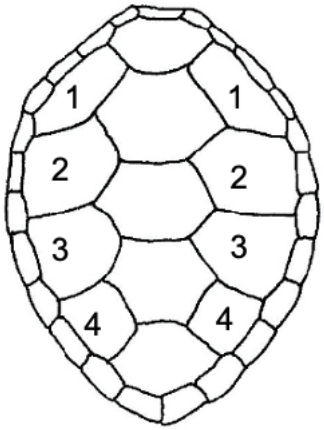
- What preys on a sea turtle? How does a sea turtle defend itself?
- What is a structural adaptation of the sea turtle that protects it from being eaten?
- What age does a sea turtle need to be before it can reproduce?
- What is the life cycle of a sea turtle?
- Do sea turtles spend their entire lives in the sea? How long can they hold their breath?
- How does it sleep? Where does it sleep? How can you tell if a sea turtle is asleep?
- How often does a sea turtle need to breathe when under stress?
- How many breaths does it take when it breathes? How much time does it spend on the surface every time it breathes? How many breaths does it take before diving back down again? Does it stay down longer when it takes more breaths?
- What fins does it use to swim? What is the function of the back flippers?
- What is the purpose of tagging a sea turtle? What does a tag look like?
- How do researchers conduct their research on sea turtles, such as attaching the tags?
- When is turtle breeding season? How is the turtle breeding season managed?
- What likes to eat sea turtle eggs?
- When a sea turtle lays eggs in the sand, the temperature of the nest will determine the gender of the baby hatchlings. What temperature creates male hatchlings? What temperature creates female hatchlings?
- Can you tell if a baby hatchling is a boy or a girl just by looking at it?
- Where do the baby hatchlings go once they are born?
- How far can a sea turtle travel?
- Do they use the currents to help them move from place to place?
- Do sea turtles cross entire oceans in search of food? What do they like to eat?
- How many different species of sea turtle are there? How many species are found on the Great Barrier Reef? Are they all endangered?
- Is there a significant difference in sea turtle abundance between summer and winter?
- Is there a significant difference in the abundance of green turtles versus loggerhead turtles?
- Is there a linear relationship between the abundance of sea turtle rescues and the concentration of plastic debris?

Sea turtles

Green / Hawksbill / other

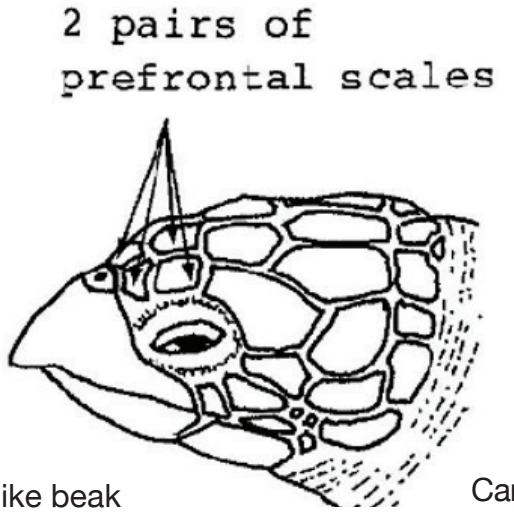
Draw a labelled diagram of a green sea turtle head and carapace.



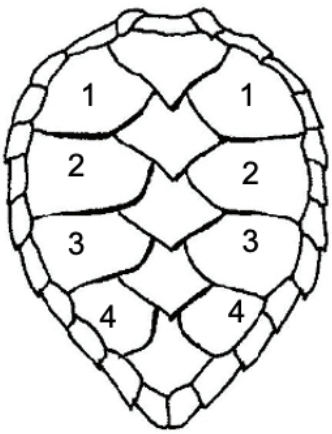


Carapace with four (4) pairs of costal scutes.

Draw a labelled diagram of a hawksbill head and carapace.



Hawk-like beak



Carapace with serrated edges and overlapping scutes. Four (4) pairs of costal scutes.

https://www.researchgate.net/figure/Heads-and-dorsal-carapaces-shells-of-the-Green-and-Hawksbill-turtles-Note-the_fig11_257395050

Ideas for conducting shark research.

- Do all sharks need to keep swimming to breathe?
- What structural adaptations do sharks have?
- What behavioural adaptations do sharks have?
- What functional adaptations do sharks have?
- How long have sharks been on Earth?
- Was there a time when sharks were close to extinction?
- What does a shark need to survive?
- How varied are the different reproductive strategies of sharks?

Look at an individual species of shark:

- How does this shark reproduce?
- How many pups does it usually have?
- Are they born live or hatch from eggs?
- How long does it take for a shark to be mature enough to breed?
- How long does a shark live for?
- How does that compare to other species of shark?
- Is there a reason why sharks are endangered?
- Is this shark dangerous?
- How many teeth do they have?
- What size and shape are the teeth?
- What do they eat? When do they hunt?
- Do they migrate? If so, where do they migrate to and from and when?
- Do they typically follow the same migratory path every year?
- How are sharks tracked by researchers?

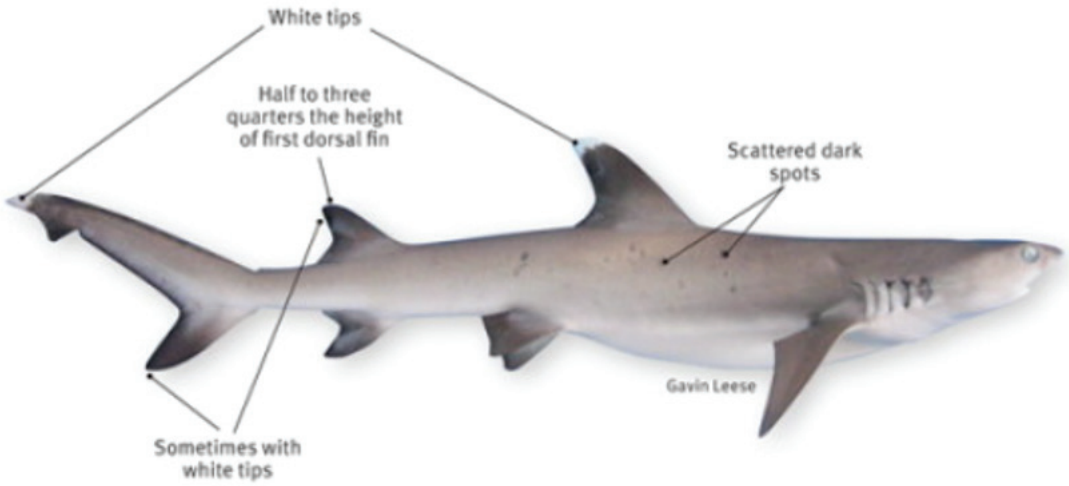
How do they compare?

- Is there a significant difference in the abundance of sharks today versus 50 years ago?
- Is there a linear relationship between shark abundance and shark size?

Sharks

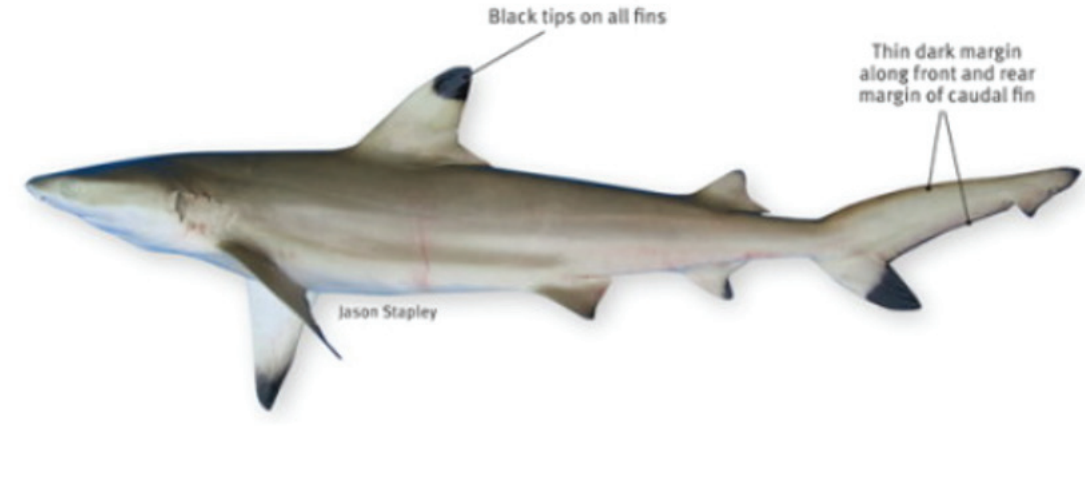
Whitetip / Blacktip / other

Draw a labelled diagram of a white-tip reef shark below.



https://www.qld.gov.au/recreation/activities/boating-fishing/rec-fishing/fish-species-guide/fish-species-id/species-page?grid=60FYIdGuFdOxvsDxHj3wR2&id=3oLUHopM7lFqbpXgNadwab

Draw a labelled diagram of a black-tip reef shark below.



https://www.qld.gov.au/recreation/activities/boating-fishing/rec-fishing/fish-species-guide/fish-species-id/species-page?grid=60FYIdGuFdOxvsDxHj3wR2&id=1gJcYnErssrmrYYAAkAA8c

Ideas for conducting crown-of-thorns starfish (COTS) research.

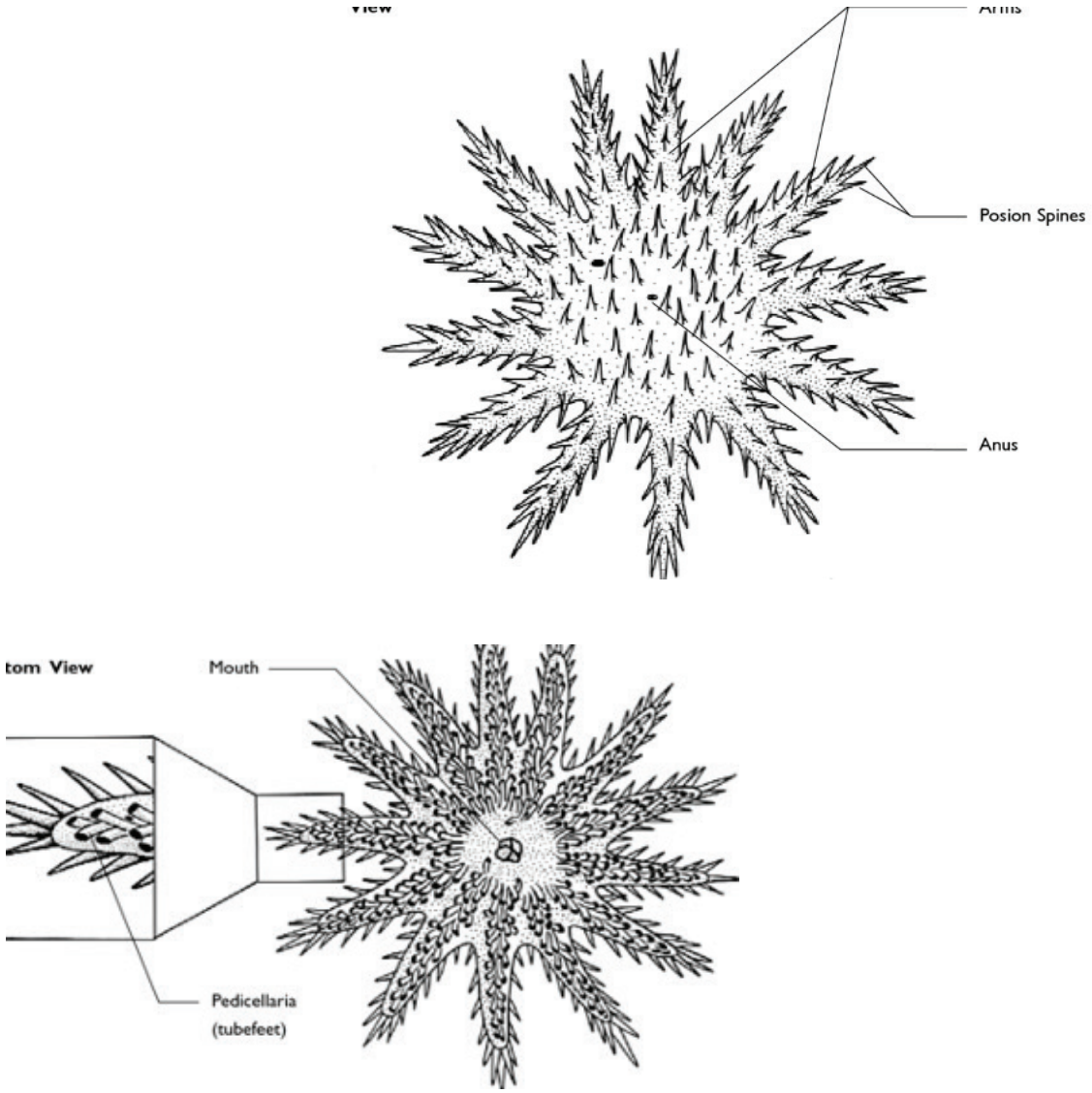
- What are COTS?
- Historically, what was the frequency and location of COTS outbreaks occur on the GBR?
- What causes COTS outbreaks?
- Are COTS outbreaks becoming more frequent? Why?
- How do you define an outbreak of COTS on a reef?
- How are COTS outbreaks controlled? Why are COTS outbreaks more dangerous to the Reef now compared to 50 years ago? Hint: what other threats are now affecting the Great Barrier Reef.

Do you have a COTS outbreak?

- Have you seen COTS feeding scars at your site?
- Are COTS out in the open during the day?
- Are COTS clumping together in groups of more than two or three?
- Are you finding small and large COTS?
- Is there more than one COTS during a 20-minute swim?

Crown-of-thorns Starfish

Draw a labelled diagram of a crown-of-thorns starfish.



https://www.researchgate.net/figure/Morphological-sketch-of-COTs_fig1_237218391

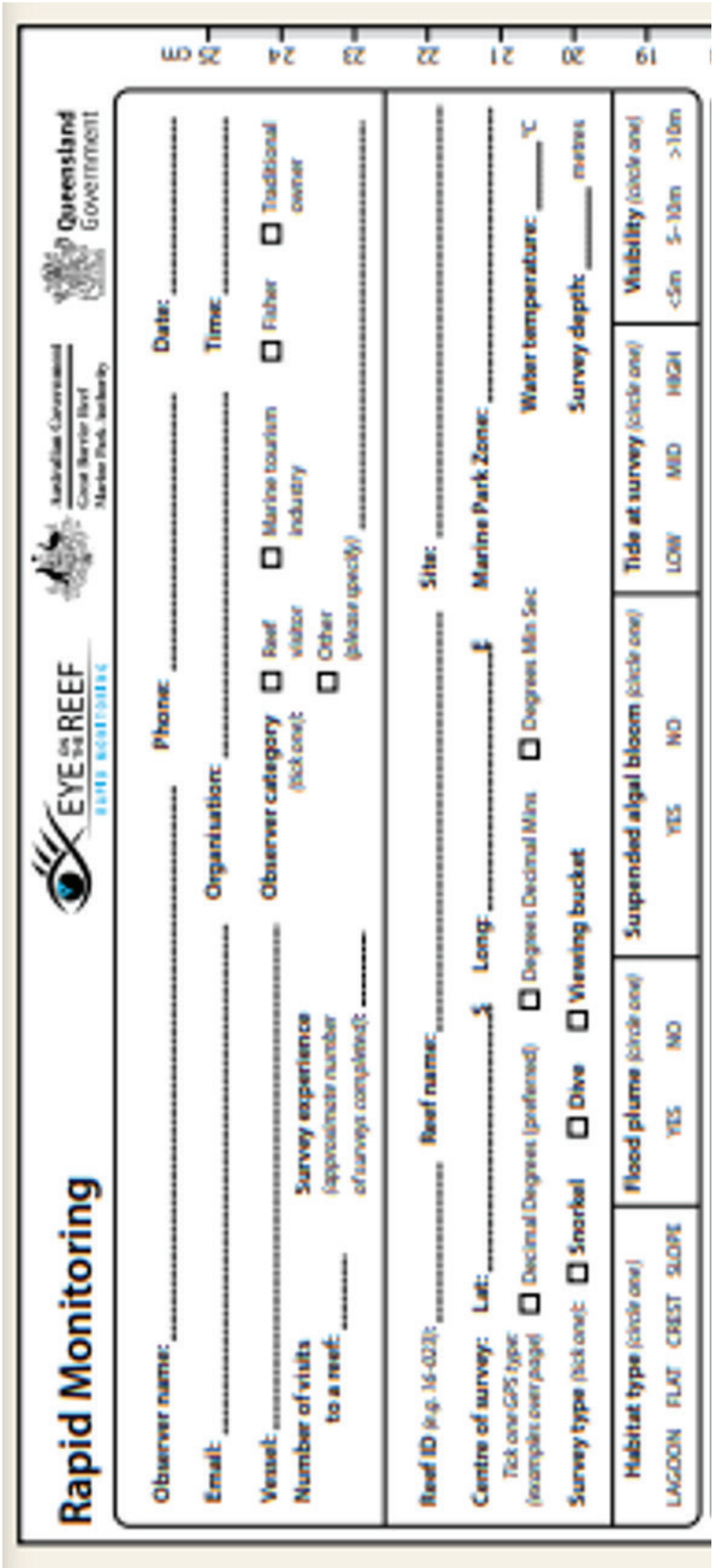
Why do we count crown-of-thorns starfish?

To prevent an outbreak. Report all sightings.

QUIZ ANSWER SHEET SCORE: _____

Question	Answer	✓×
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Complete this table with your Reef Guide after counting the animals on the reef.



Rapid Monitoring

EYE on the REEF

Queensland Government

Observer name: _____ Phone: _____ Date: _____

Email: _____ Organisation: _____ Time: _____

Vessel: _____ Observer category (tick one): ☐ Reef visitor ☐ Marine tourism industry ☐ Fisher ☐ Traditional owner ☐ Other (please specify) _____

Number of visits to a reef: _____ Survey experience (approximate number of surveys completed): _____

Reef ID (e.g. 16-023): _____ Reef name: _____ Site: _____

Centre of survey: Lat: _____ Long: _____ Marine Park Zone: _____

Tick one GPS type (examples over page): ☐ Decimal Degrees (preferred) ☐ Degrees Decimal Mins ☐ Degrees Min Sec

Water temperature: _____ °C

Survey type (tick one): ☐ Snorkel ☐ Dive ☐ Viewing bucket

Survey depth: _____ metres

Habitat type (circle one)	Flood plume (circle one)	Suspended algal bloom (circle one)	Tide at survey (circle one)	Visibility (circle one)
LAGOON FLAT CREST SLOPE	YES NO	YES NO	LOW MID HIGH	<5m 5–10m >10m

Complete this table with your Reef Guide after counting the animals on the reef.

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

Complete back at school after your excursion.

How did I help the Great Barrier Reef?

Below, draw a picture or write about your day on the Reef!