



**Australian Government**  
**Great Barrier Reef**  
**Marine Park Authority**

# Be a Marine Biologist for a Day

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**Activity Booklet**  
**Year 8**



**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 helps to monitor and manage the Reef.

The Great Barrier Reef Marine Park Authority (GBRMPA) has a citizen science program called Eye on the Reef.

I will be collecting data for Eye on the Reef during a Rapid Monitoring survey.

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.

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

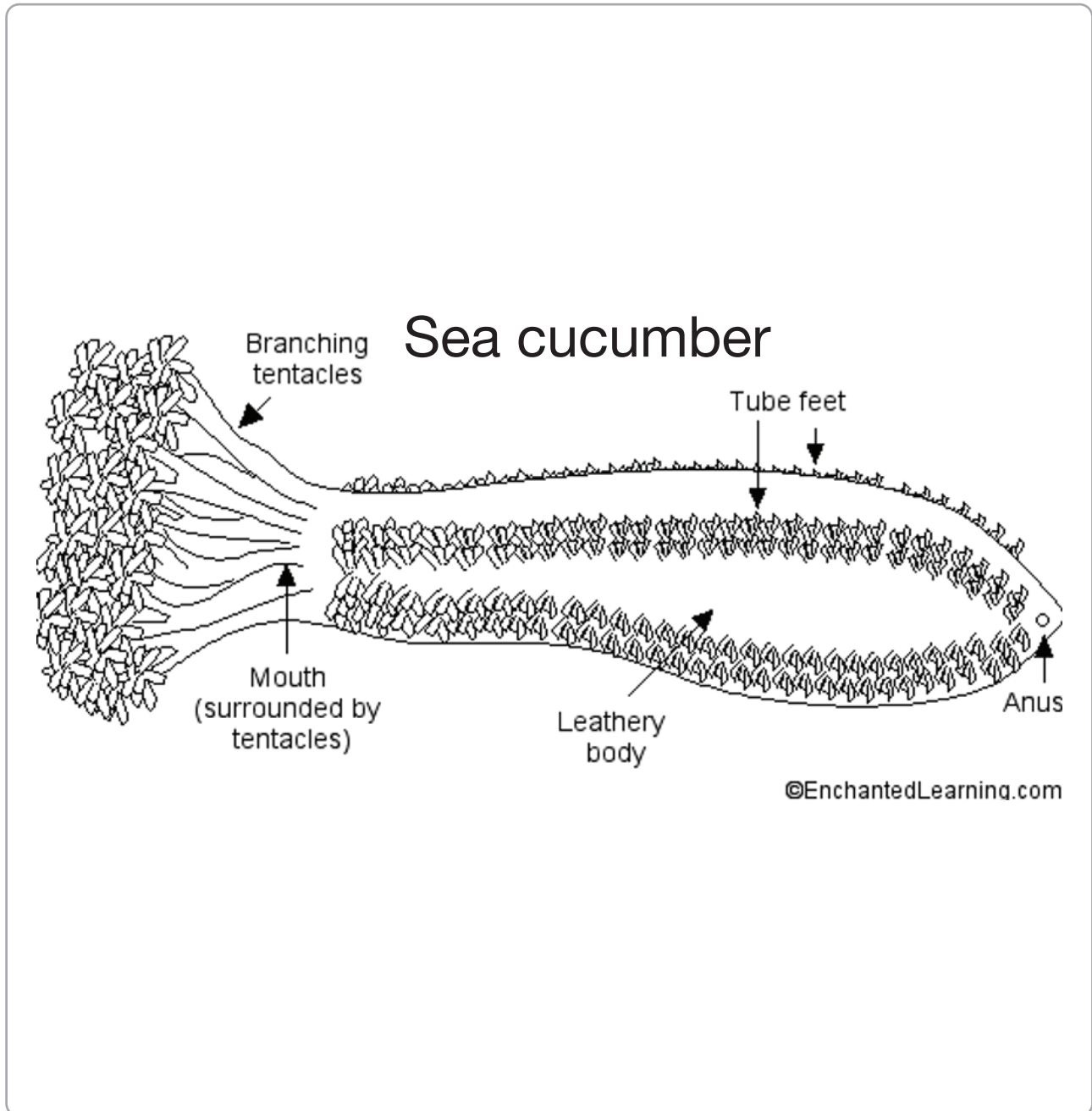
I need to bring this activity book on the excursion. There are lots of questions to answer about the animals we are counting. The questions are very similar to what we are learning this year at school. The Great Barrier Reef Marine Park Authority made sure these activity books aligned with the syllabus 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 get older, or when I visit the reef again, I will be able to do a Rapid Monitoring survey all on my own because I will know what to do!

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

# Sea cucumber

Draw a labelled diagram of a sea cucumber below.



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

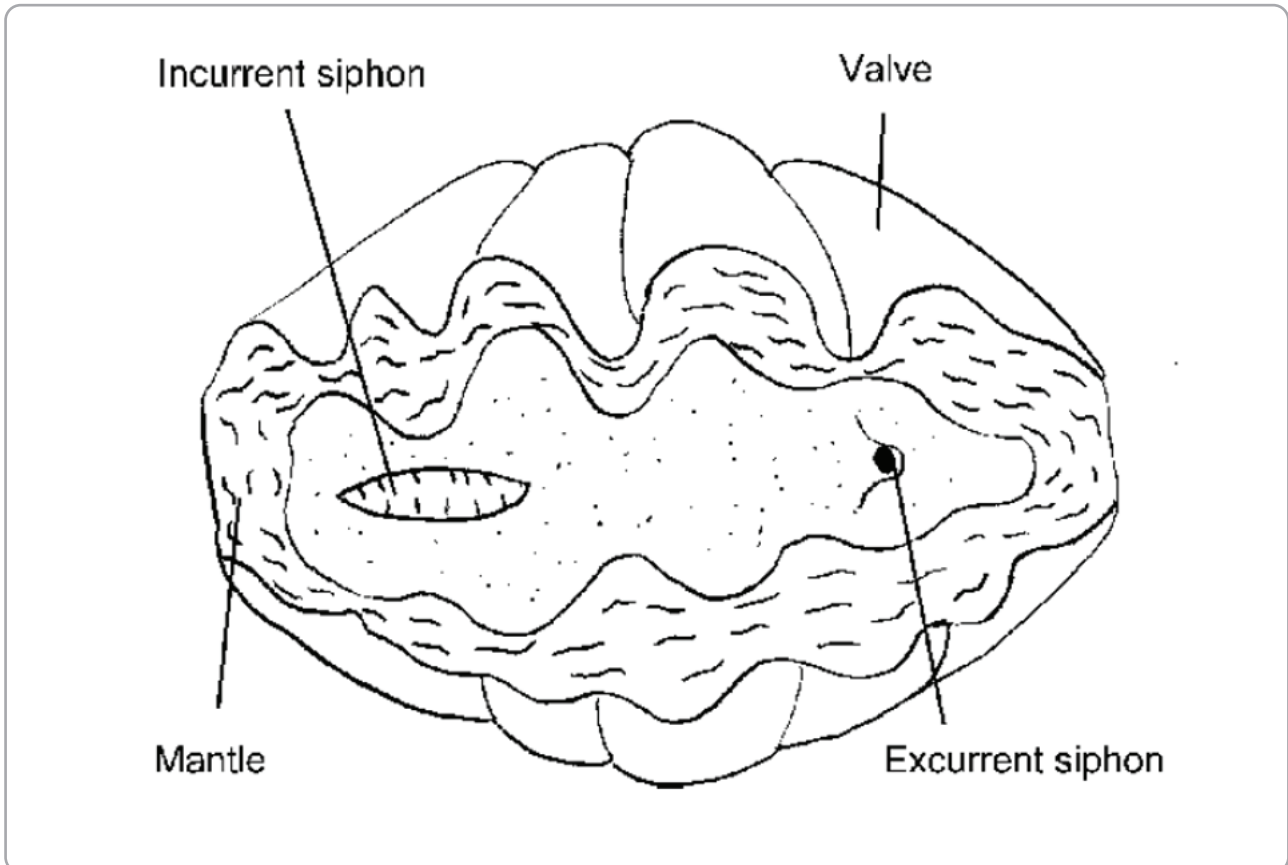
How does a sea cucumber reproduce?

They lift their head, high above the seafloor, and spawn eggs or sperm into the water.

# 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/>

How do giant clams reproduce?

They eject eggs and sperm into the water. Usually when other clams are spawning too. Chemical signals initiate spawning.

Can giant clams see?

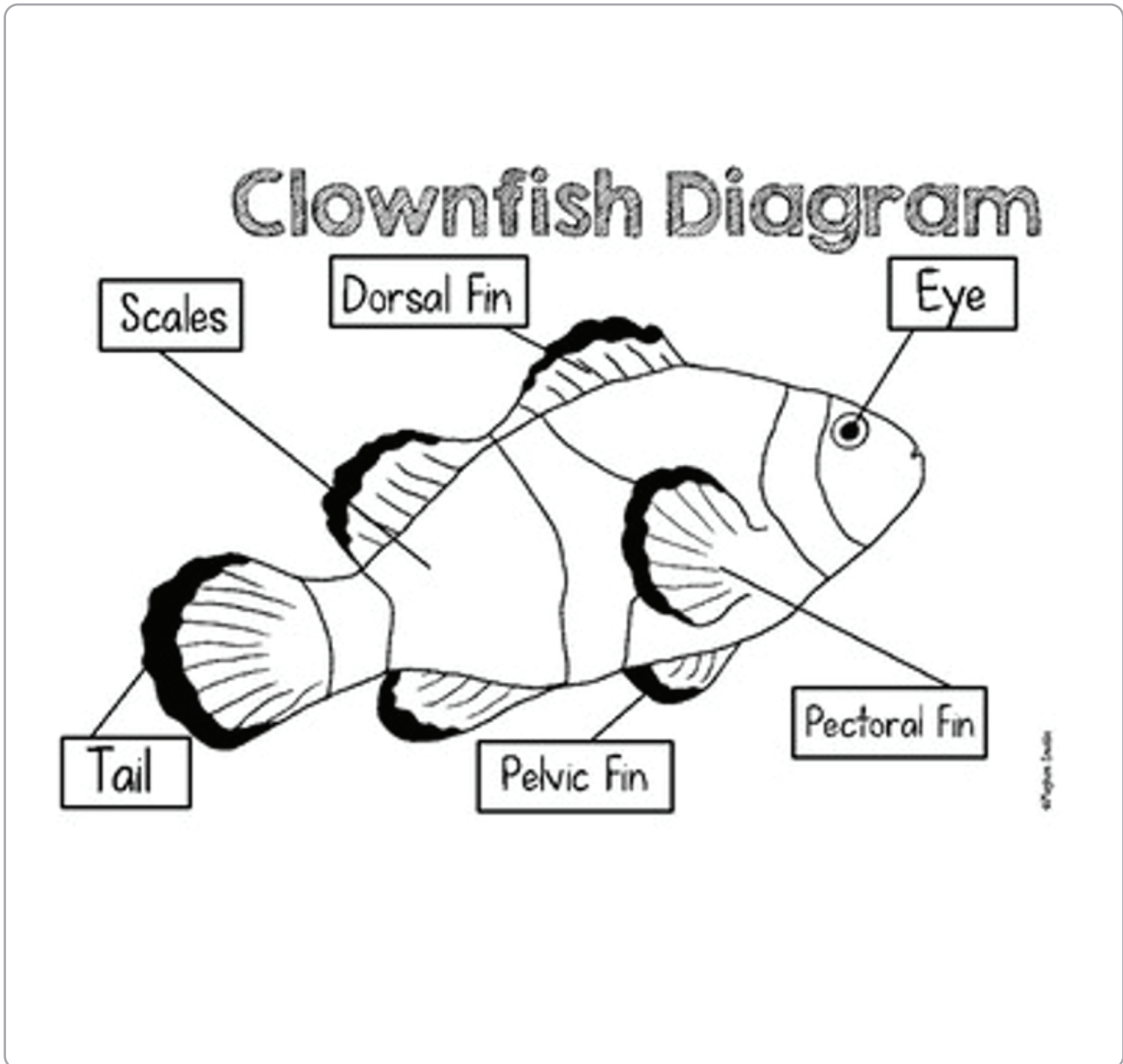
Yes. With hundreds of pin-hole eyespots that respond to light and dark.

How many holes (siphons) are there in a giant clam?

2.

# Anemonefish

Draw a labelled diagram of an anemonefish below.



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

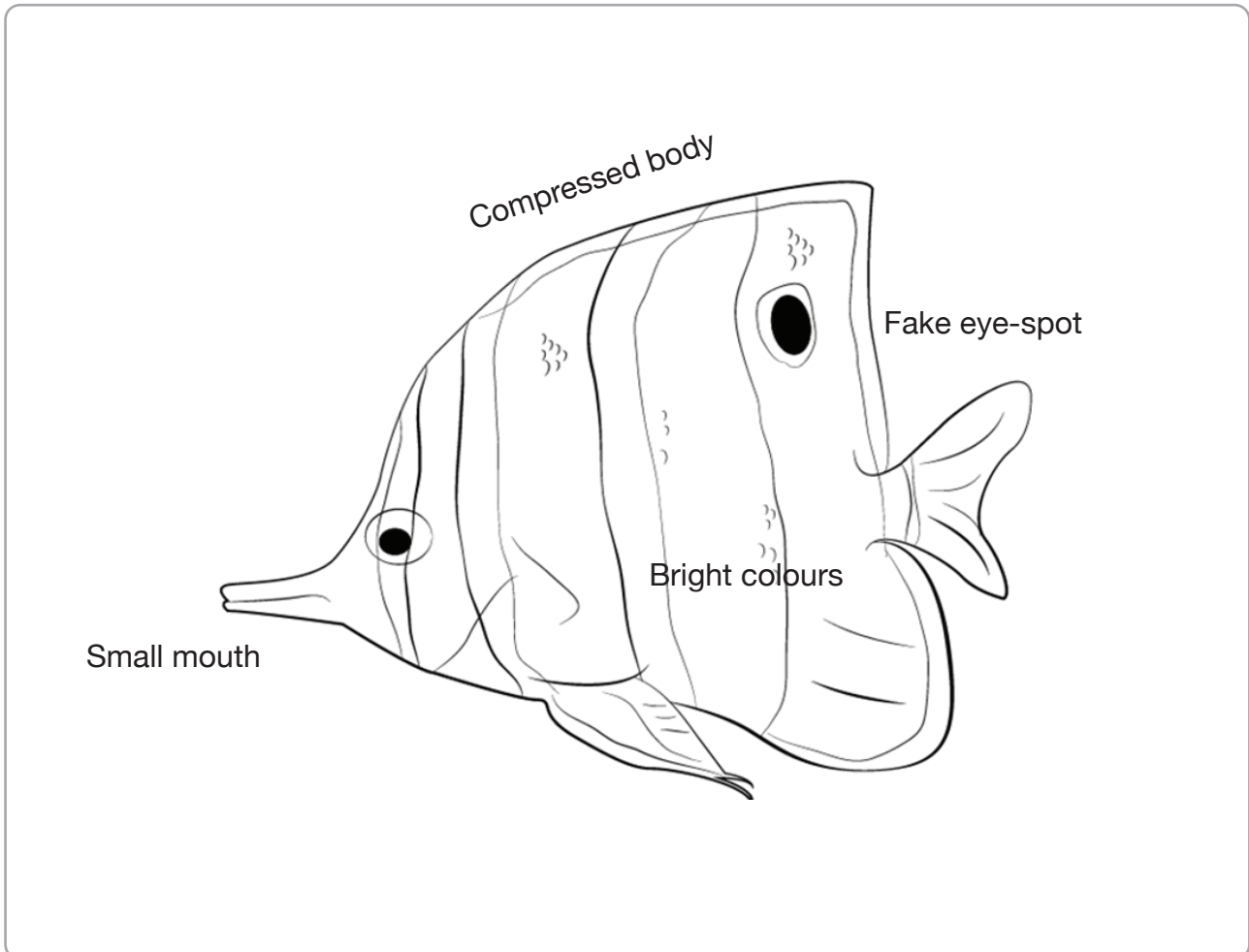
## How do anemonefish reproduce?

They lay eggs. Baby anemonefish can swim very fast soon after hatching.

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.

# Butterflyfish

Draw a labelled diagram of a butterflyfish below.



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

Do all butterflyfish form pairs?

No. But pairs of butterflyfish are very common.

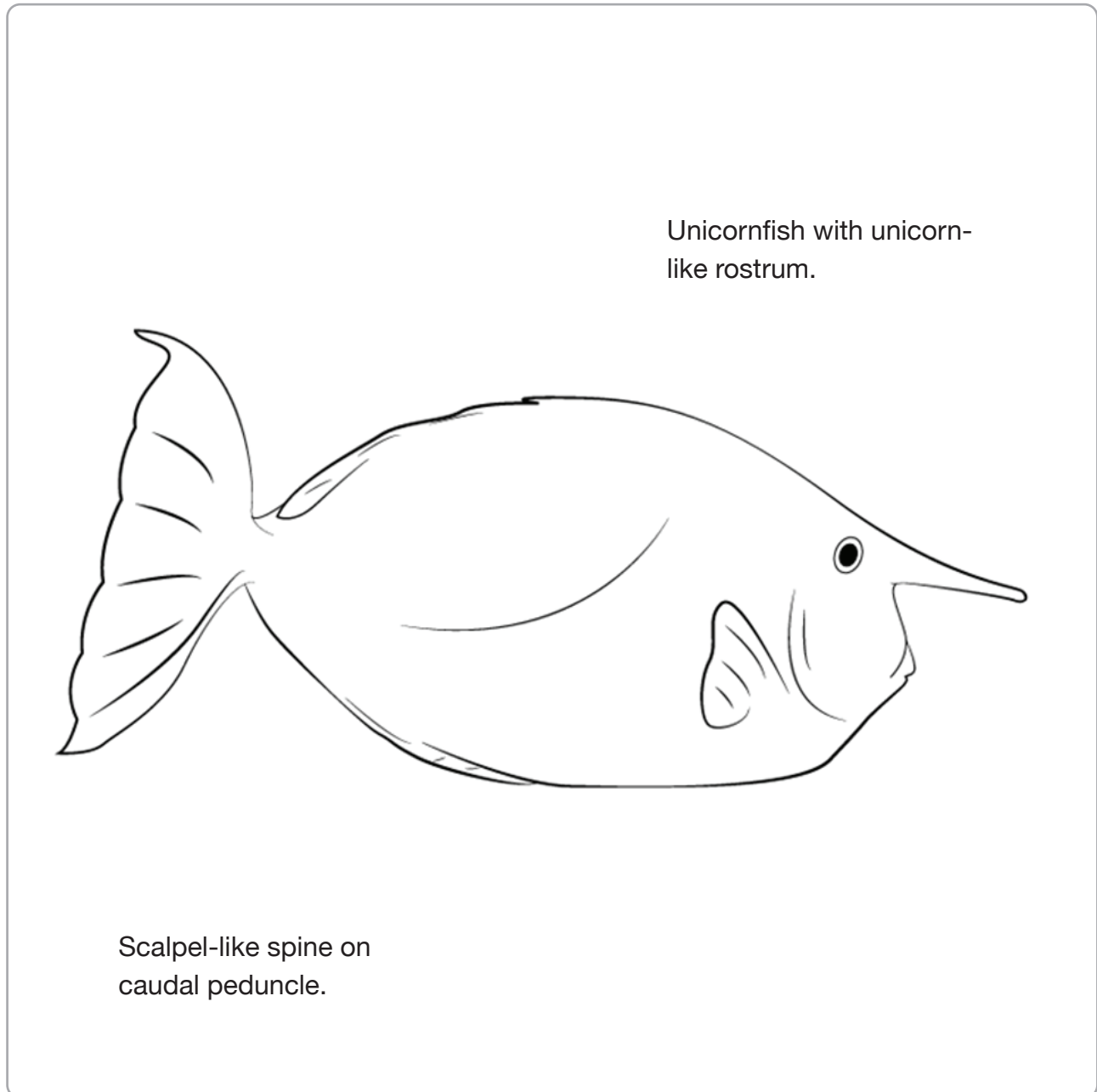
How do butterflyfish reproduce?

A pair will swim to the surface and release sperm and eggs. Sometimes other males follow the pair upwards and shed their sperm moments after the initial gametes are released. The fertile eggs drift off in the current and larval fish hatch. The larvae live as plankton for about 1 month.

# 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>

How is the digestive system of a herbivore (e.g. teeth, mouth size, length of intestine) different to a carnivore?

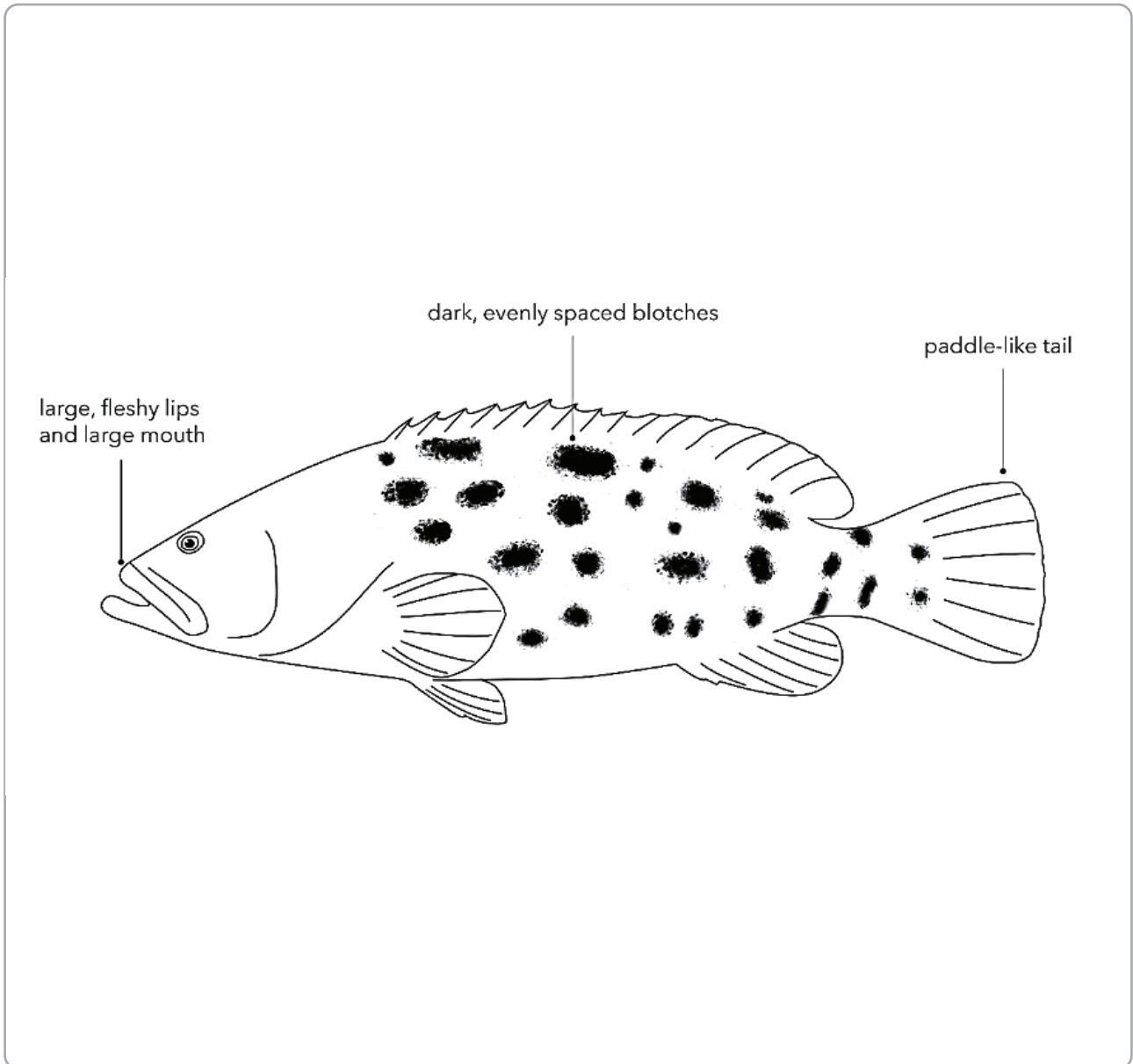
Herbivores have molar-like teeth, smaller mouths, and longer intestines.



# Cods and groupers

>50cm

Draw a labelled diagram of a cod or grouper below.



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

## How does a cod or grouper find a mate to reproduce?

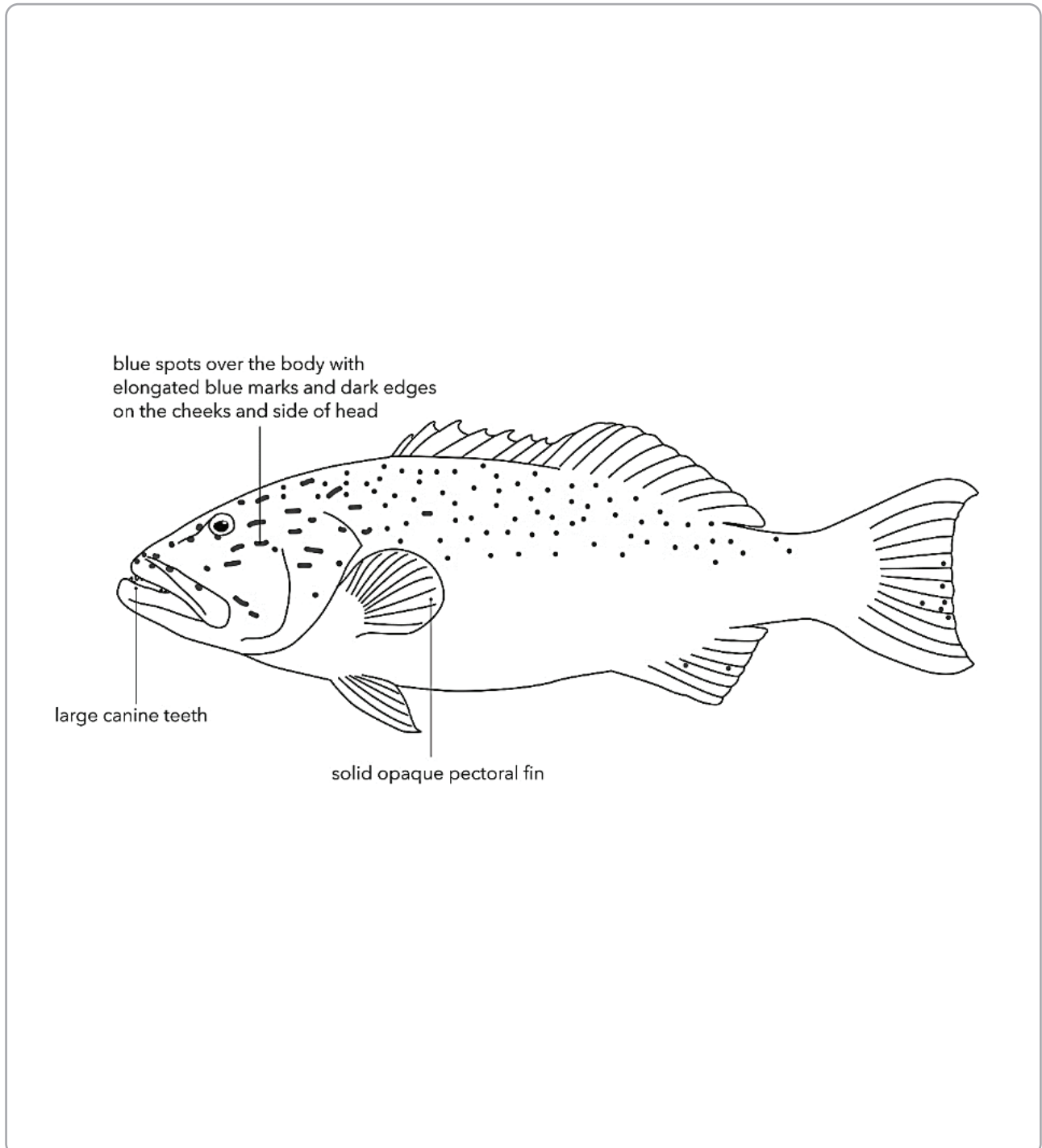
At spawning aggregations. They all gather in once spot and, in pairs, simultaneously release eggs and sperm in the water.

After spawning one or more times as females, they change sex and become a male.

# 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/>

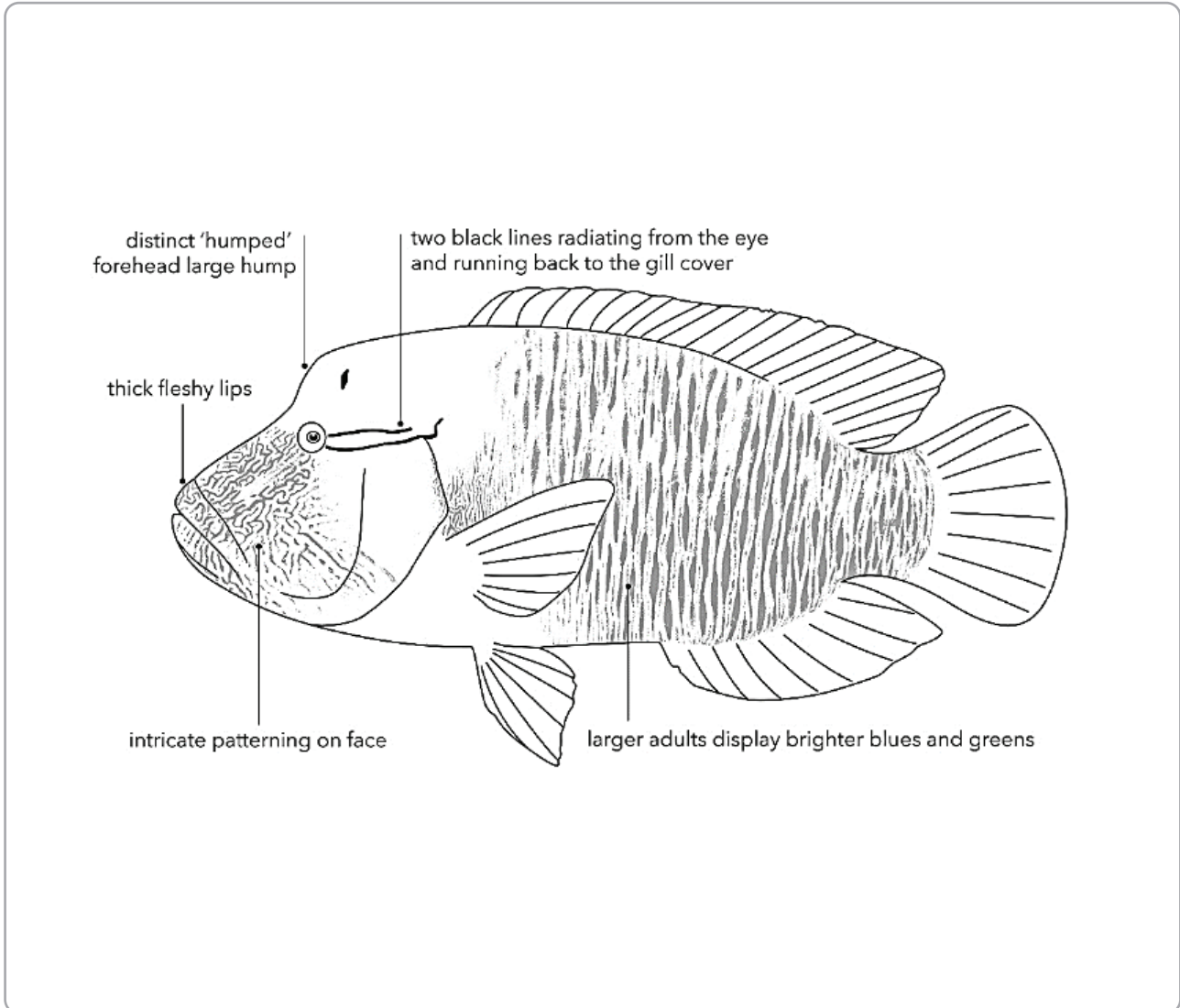
What size do coral trout change from female to male?

42cm.

# 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 live?

Maori wrasse live on the Reef and occupy limited home ranges.

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

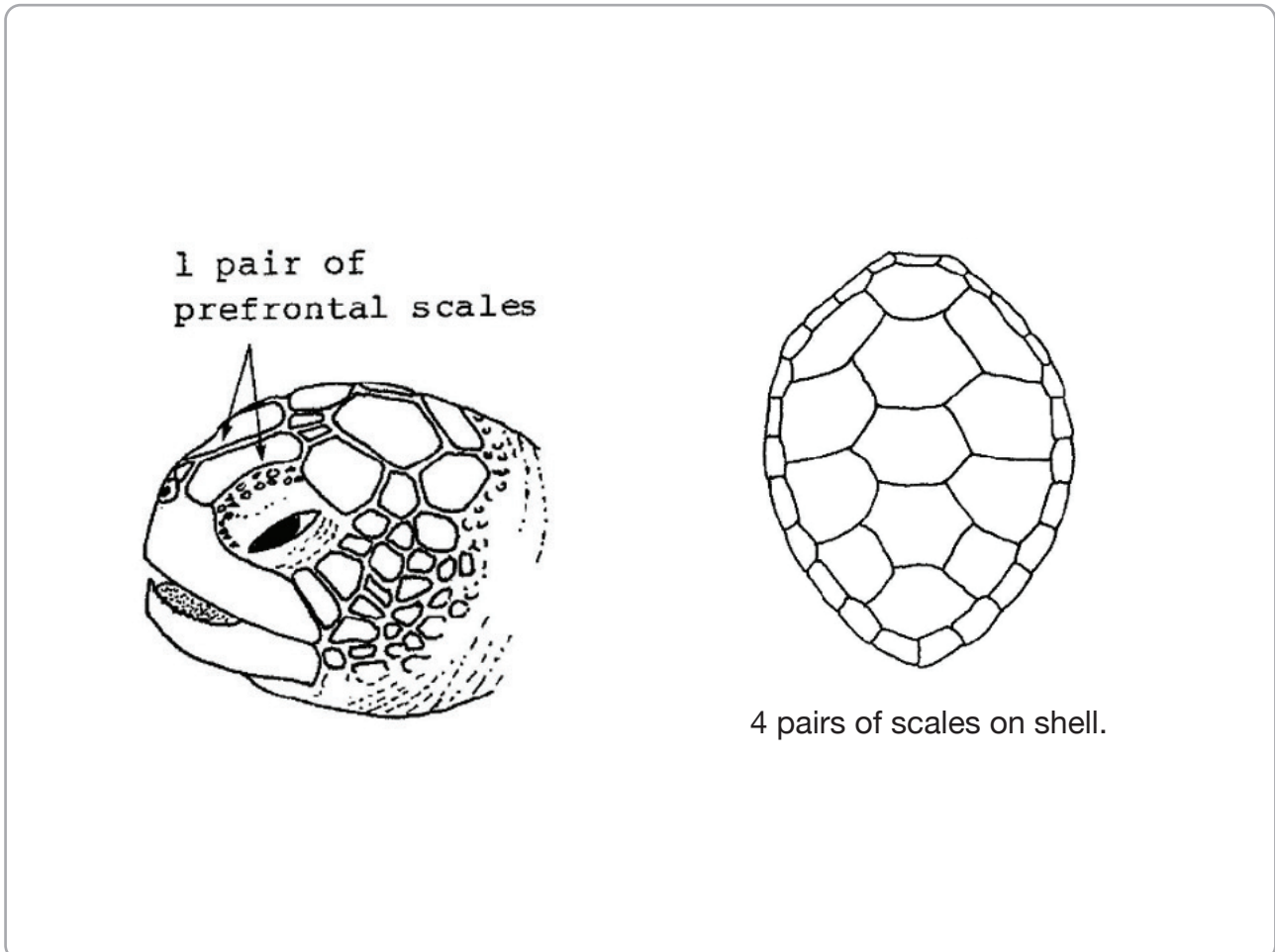
## What happens if people touch a Maori wrasse?

It can remove its protective coating of mucus, and they can get sick.

# Sea turtles

Green / hawksbill / other

Draw a labelled diagram of a green turtle head and shell.



[https://www.researchgate.net/figure/Heads-and-dorsal-carapaces-shells-of-the-Green-and-Hawksbill-turtles-Note-the\\_fig11\\_257395050](https://www.researchgate.net/figure/Heads-and-dorsal-carapaces-shells-of-the-Green-and-Hawksbill-turtles-Note-the_fig11_257395050)

When is turtle breeding season?

Summer.

How many sea turtles are threatened with extinction?

All 6 found on the Great Barrier Reef.

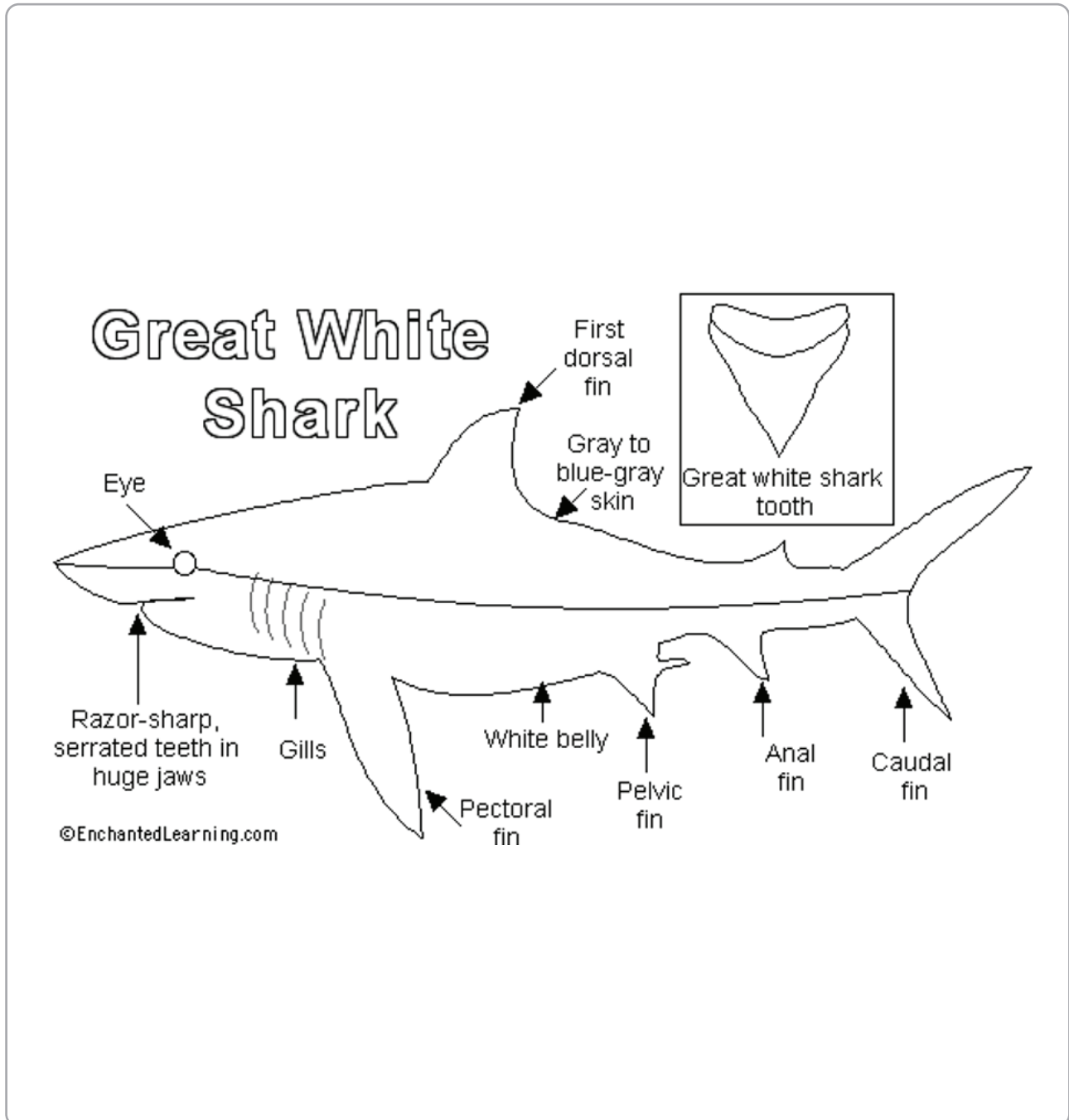
What do sea turtles eat that look like jellyfish?

Plastic Bags.

# Sharks

Whitetip / Blacktip / other

Draw a labelled diagram of a great white shark.



<https://www.enchantedlearning.com/subjects/sharks/classroom/sharktemplates/Gws.shtml>

How can you tell the difference between a male and female shark?


Males have two claspers.

# QUIZ ANSWER SHEET


SCORE: \_\_\_\_\_

Question	Answer	✓×
1		
2		
3		
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29		
30		

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



**EYE ON THE REEF**  
RAPID MONITORING



Queensland  
GOVERNMENT

Marine Park Authority  
Queensland Conservation  
Coast Service Reef  
Marine Park Authority

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**Rapid Monitoring**

Observer name: ..... Phone: ..... Date: .....

Email: ..... Organisation: ..... Time: .....

Vessel: ..... Observer category:  Reef  Marine tourism  Fisher  Traditional owner  
(pick one)

Number of visits to a reef: ..... Survey experience  visitor  Other  
(approximate number of surveys completed) (please specify)

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

Centre of survey: Lat: ..... S ..... E ..... Long: ..... W ..... Marine Park Zone: .....  
Tick one GPS type (examples over page)  Decimal Degrees (preferred)  Degrees Min Sec  Degrees Min Sec

Survey type (pick one):  Snorkel  Dive  Viewing bucket












Water temperature: ..... °C

Survey depth: ..... metres

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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 MED HIGH	<5m 5-10m >10m

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

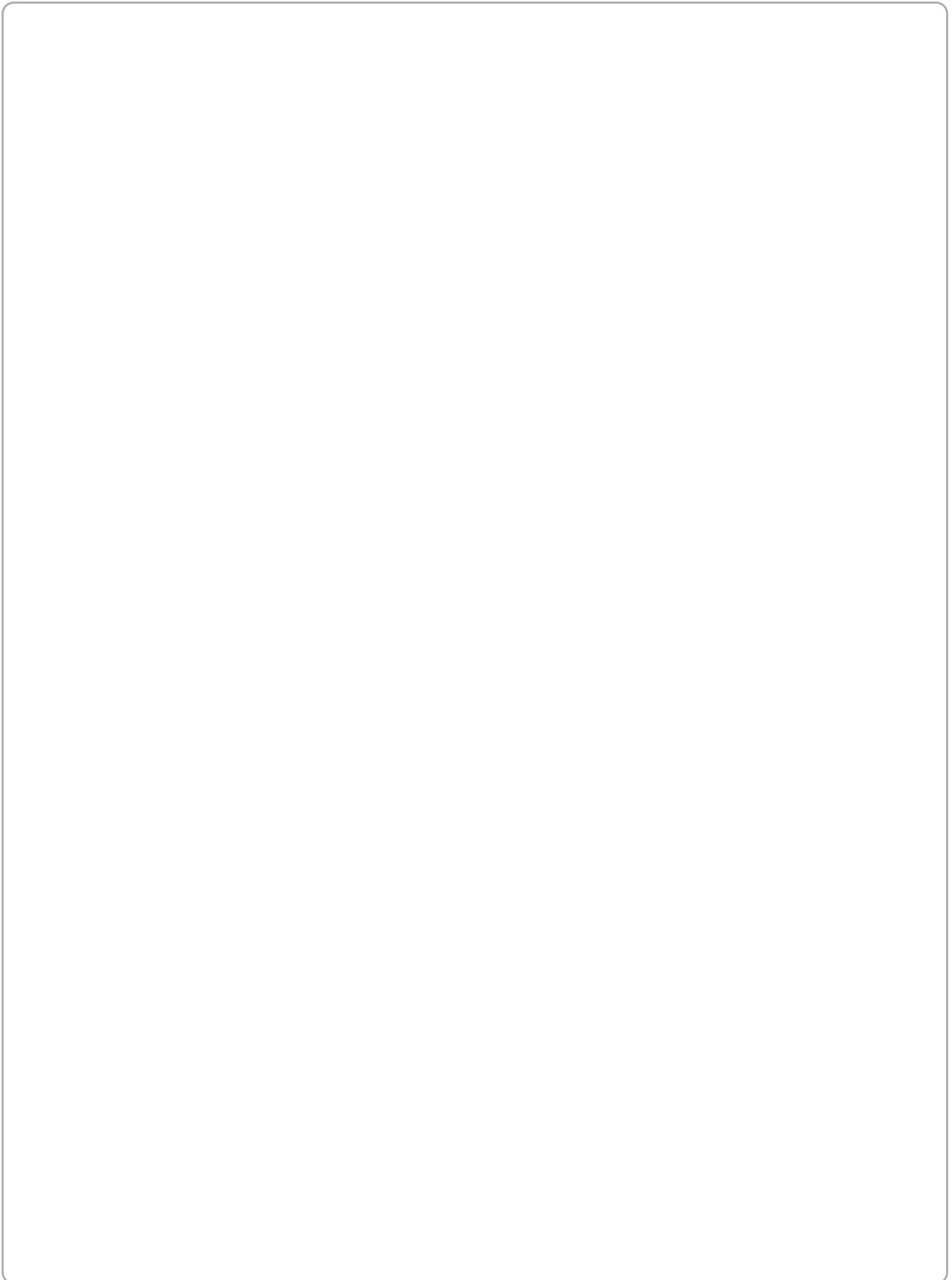
Timed swim (10 minutes)		See over page for survey methodology				
ANIMALS	TALLY	TOTAL	ANIMALS	SIZE	TALLY	TOTAL
Sea cucumber (all species) 			Coral trout (all species) 	<38cm >38cm		
Giant clam (larger than size of hand) 			Maori wrasse 	SEX Male Female		
Anemonefish (all species) 			Turtle (all species)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



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!

A large, empty rectangular box with rounded corners, intended for a student to draw a picture or write about their day on the reef. The box is completely blank and occupies most of the page's vertical space.