WHALES BENEATH the WAVES

uclanpublishing

This book is dedicated to the hard working teams in the Azores who educate the world about whales and create memories of a lifetime.

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All text copyright © Megan Pollard, Amy-Louise Thompson, Helen McGlasson, Abigail Law 2015

All pictures and illustrations copyright © Jade Fricker, Riley Arthur, Laura Shepherd, Megan Pollard, Stephanie Almeida, Emma Colbert, 2015 The Azorean people led the way from whaling to whale watching. It was a peaceful transition during which the Azorean people gave the world a significant massage: it's still possible to use whales, simply by contemplating the wonders of nature and marine wildlife.

> *Miguel Cravinho Terra Azul, co-founder and president*



Foreword







- Length: 24–33 meters (80–100 feet)
- Weight: 180,000 kilograms (200 tons)
- Average Speed: 22 km/hour (13 mph)
- Fastest Speed: 48 km/hour (30 mph)
- Life Span: 70 years



Whales_INT_NEW.indd 6-7



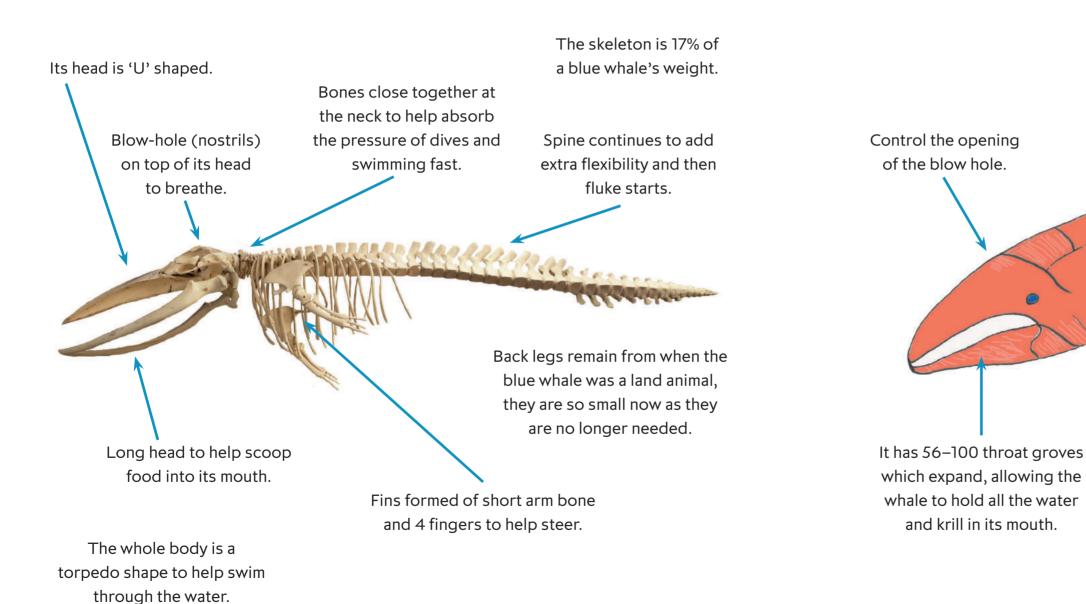
- A blue whale is the largest animal in the world!
- Its heart is the same size as a Volkswagen Beatle car.
- They weigh the same as 2700 people.
- Which is the same as 33 elephants.
- They are called blue whales because of the colour they look underwater.

B UE WHALE



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Whales INT NEW.indd 8-9

MUSCLE STRUCTURE

The muscles are 40% of a blue whale's weight.

> Controls the upward stroke of the tail.

Controls the pectoral flipper.

Controls the downward stroke of the tail.

Myoglobin flows the oxygen around the muscles. They are different to human haemoglobin as they can hold more oxygen, meaning the whale can hold its breath for longer.

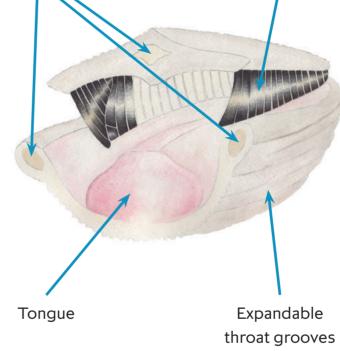
DIGESTIVE SYSTEM



Baleen plate

• Fore-stomach: the first chamber stores the food waiting to be digested. Muscles squeeze the food to help break it down. It can hold up to 1000kg of food.

• Main Stomach: the second chamber breaks down the food by adding different acids - pepsin and hydrochloric. It can also hold up to 1000kg of food.



Whale bone

• Connecting Channel: connects the main stomach with the next chamber.

• Pyloric Stomach: made up of two chambers, here we find the digestive glands and where most of the food is digested.

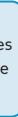
FACT: Blue whales can consume 500,000 calories in one mouthful! That's the same as in 5000 apples.

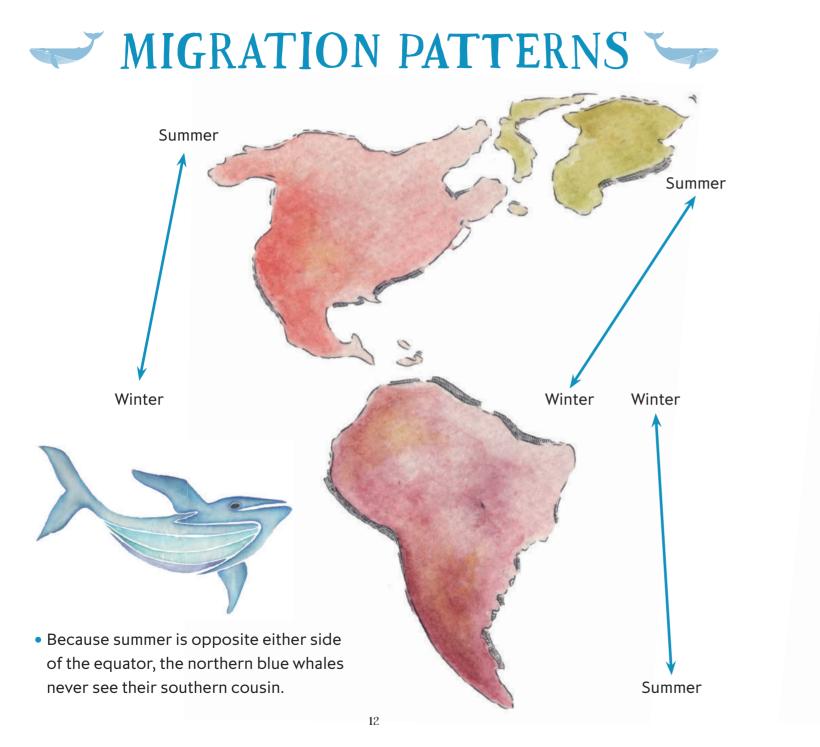
TEETH 💬

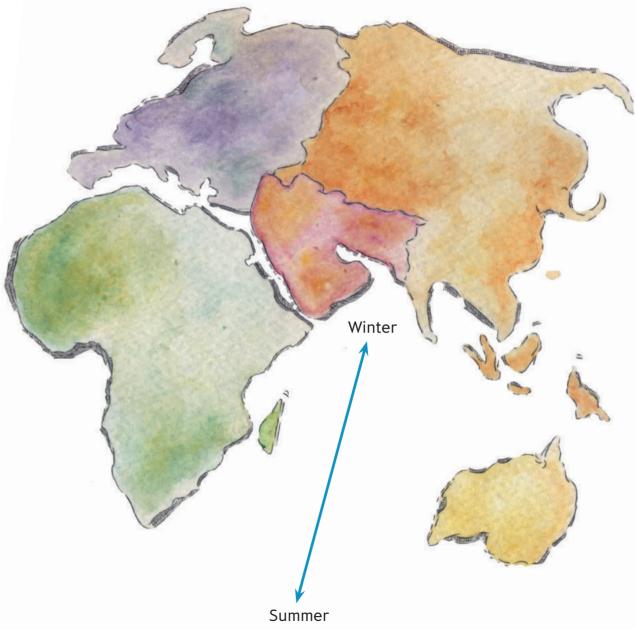
- The blue whale is a Baleen whale. They get their name from their teeth.
- Unlike humans, they don't have teeth, they have baleen plates.
- These baleen plates are made out of the same stuff as human fingernails.
- When the blue whale eats, it takes water into its mouth as well the krill.
- They then push this water out through their baleen plates with their tongue, and all the bristles of the plate trap the food for them to eat, a little bit like a sieve.
- Blue whales have 260–400 baleen plates in their mouths.











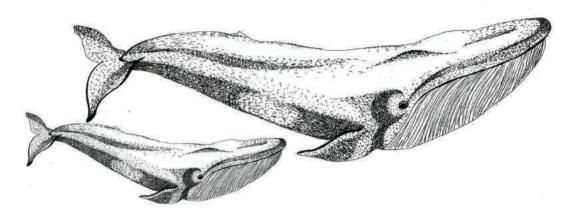
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FOOD CHAIN V

• Killer whales eat blue whale young but once they are fully grown, the killer whales rarely attack them. **Blue whale** Apex Predator – means nothing is above them. Krill 40 million krill a day can be consumed during the mating season. Plankton

> **FACT:** Blue whales don't eat for 8 months of the year.





- Surprisingly not much is known about how blue whales reproduce.
- Blue whales have 1 calf every 2–3 years.
- They are pregnant for 10–11 months.
- The calf is 7 meters long and weighs between 2,700kg-3,600kg when it is born.



REPRODUCTION

- The calf feeds on its mum's milk for 7–8 months.
- The calf gains 90kg and 2.5 cm per day.
- They reach sexual maturity at 5–10 years old. Mating season occurs in winter and early spring.
- During mating season, the adults will sing to each other, this is why we have whale songs.
- Blue whales can mate with fin whales and this results in a hybrid whale. Sightings of these whales is very rare.

CLASSIFICATION & CHARACTERISTICS



The blue whale, at 188 decibels, is louder than a jet engine at 140, it can be heard 10,000 miles away.

- Although it is the biggest animal in the world, the biggest thing it can swallow is a grapefruit.
- The blue whale's closest land relative is the hippopotamus.



- The blue whale dives for 10–20 minutes at a time which can be 100 meters down.
- They are mammals, meaning they are warm bloodied and give birth to live young.
- They are classed as endangered and only have an estimated 10,000-25,000 individuals left in the world.
- There are 4 different types of blue whale: Balaenoptera Musculus (Northern blue whales) Balaenoptera Musculus Intermedia (Antarctic or Southern blue whales) Balaenoptera Musculus Indica (Indian ocean blue whales) Balaenoptera Musculus Brevicauda (Pygmy blue whale)

IDENTIFICATION





- Small dorsal fin not shown until it dives due to it being so far back.
- Its blow can be up to 15 meters in the air.
- It has two nostrils, the same as humans.

- U-shaped head.
- Size as it is the largest animal in the world, it is hard to miss a blue whale!
- Fluke long, broad, sometimes raised before a dive.
- Blue-grey colour, yellow underbelly.











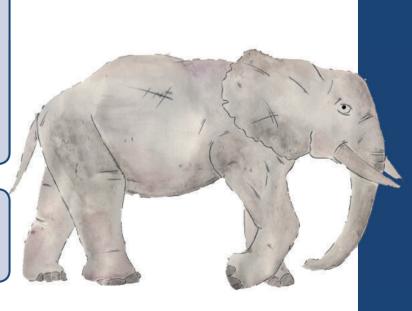
- Length: northern hemisphere 24 meters (79 feet), southern hemisphere 27.1 meters (89 feet)
- Weight: 120,000 kg (260,000 pounds)
- Average Speed: 37 km/hour (22 mph)
- Fastest Speed: 47 km/hour (29 mph)
- Life Span: 80 years



FACT: Fin whales can eat 2 tons (1,814 kg) of food in one day.

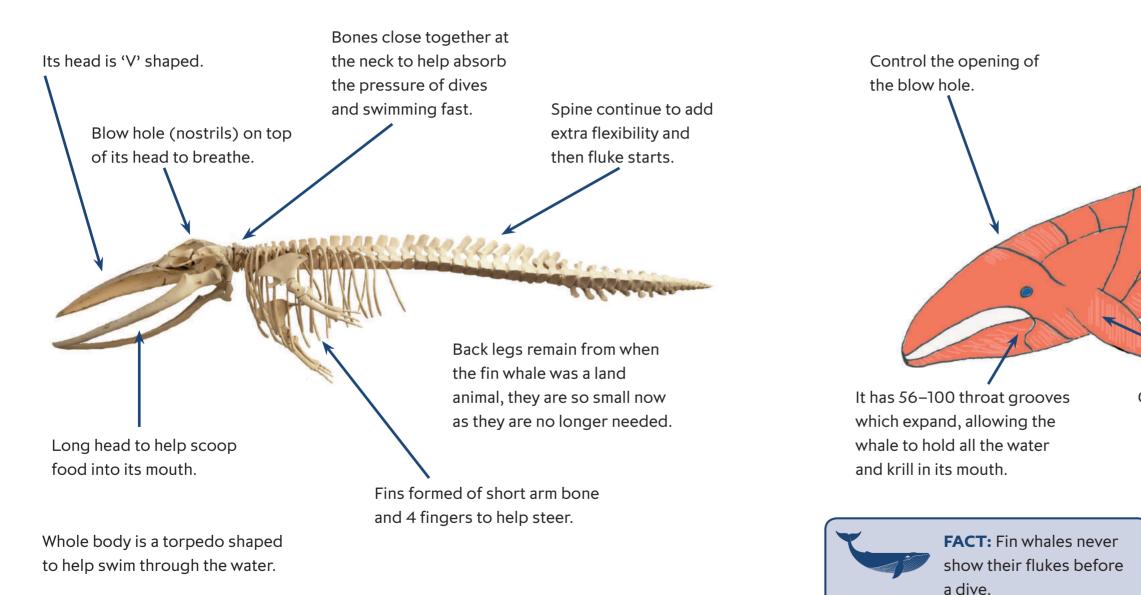
- A fin whale is the second largest animal in the world!
- They weigh the same as 1550 humans.
- That's the same as 10 elephants.
- They are called fin whales because of their large dorsal fin.





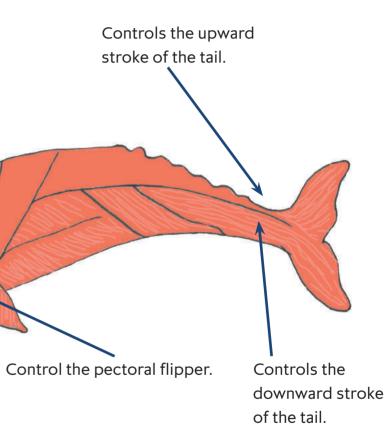






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MUSCLE STRUCTURE





Myoglobin flows the oxygen around the muscles. They are different to human haemoglobin as they can hold more oxygen, meaning the whale can hold its breath for longer.

DIGESTIVE SYSTEM

Upper Jaw

- Fore-stomach: the first chamber stores the food waiting to be digested. Muscles squeeze the food to help break it down. It can hold up to 1000kg of food.
- Main Stomach: the second chamber breaks down the food by adding different acids - pepsin and hydrochloric. It can also hold up to 1000kg of food.

• Connecting Channel: connects the main stomach with the next chamber.

• Pyloric Stomach: made up of two chambers, here we find the digestive glands and where most of the food is digested.



Baleen plates

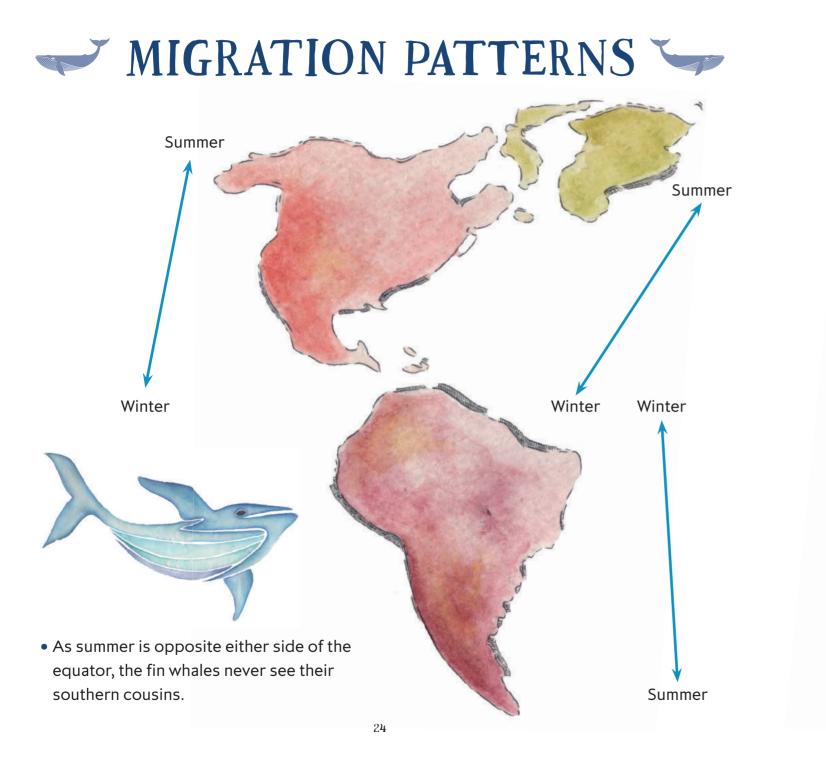
FACT: Due to its shape, the fin whale is quite often called a Razorback.

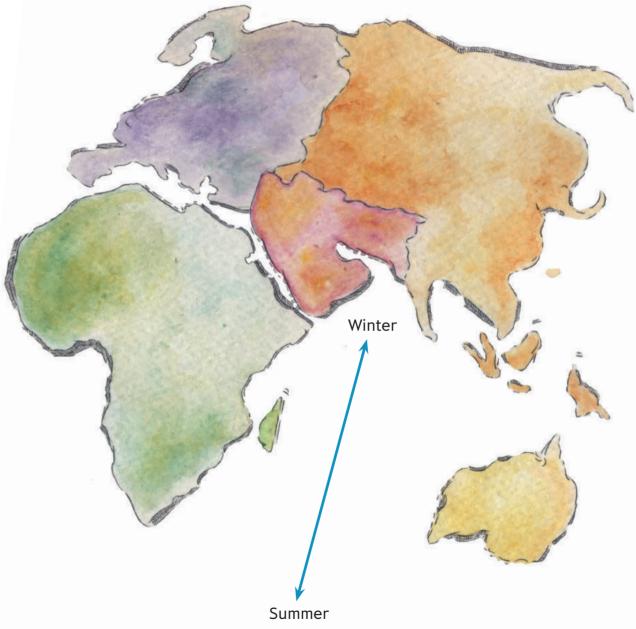
Lower jaw

TEETH -

- The fin whale is a Baleen whale. They get their name from their teeth.
- Unlike humans, they don't have teeth, they have baleen plates.
- These baleen plates are made out of the same stuff as human fingernails.
- When the fin whale eats, it takes water into its mouth as well the krill.
- They then push this water out through their baleen plates with their tongue, and all the bristles of the plate trap the food for them to eat, a little bit like a sieve.
- Fin whales have 260–480 baleen plates in their mouths.

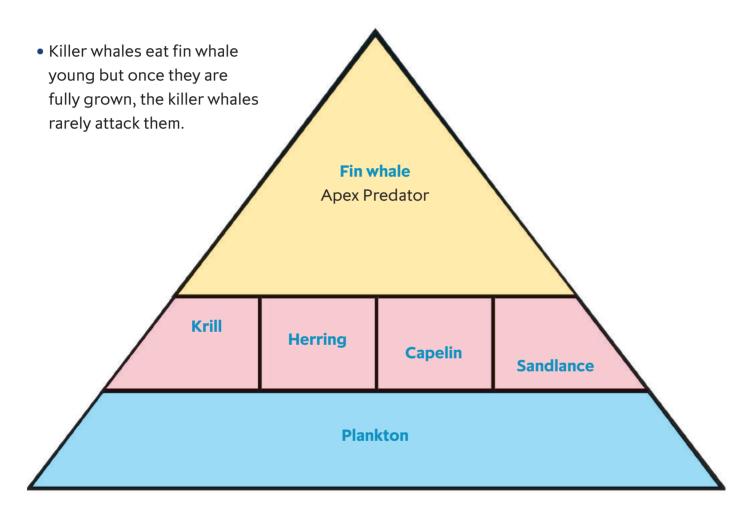






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FOOD CHAIN V



FACT: Fin whales lunge feed, meaning they dive into a shoal of fish, mouth agape and take everything into their mouths.





- Surprisingly not much is known about how fin whales reproduce
- Fin whales have 1 calf every 2–3 years.
- They are pregnant for 11–12 months.
- The calf is 6.5 meters long and weighs between 1,800–2,700kg when it is born.
- The calf feeds on its mum's milk for 6–8 months.
- Mating season occurs in winter.

REPRODUCTION

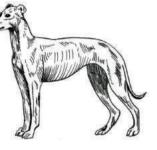
• Fin whales can mate with blue whales and this results in a hybrid (pictured below). Sightings of these whales are very rare.



CLASSIFICATION & CHARACTERISTICS



• Fin whales are so fast that they are often described as the greyhounds of the sea world.



The fin whale, at 188

decibels, is louder

than a jet engine at 140. It can be heard

850km away.

• The females are longer than the males by up to 2 meters!

- The fin whale dives for 10–20 minutes at a time which can be 100 meters down.
- They are mammals, meaning they are warm bloodied and give birth to live young.
- They are classed as Endangered and only have an estimated 50,000 -90,000 individuals left in the world.
- There are 2 different types of fin whale: Balaenoptera Physalus Physalus (Northern Hemisphere) Balaenoptera Physalus Quoyi (Southern Hemisphere)





- V-shaped head with a white lower right jaw and black-grey lower left jaw.
- Black-grey body, white underbelly.
- Large dorsal fin (hence its name).
- Pale chevron like lines on its back between head and dorsal fin.



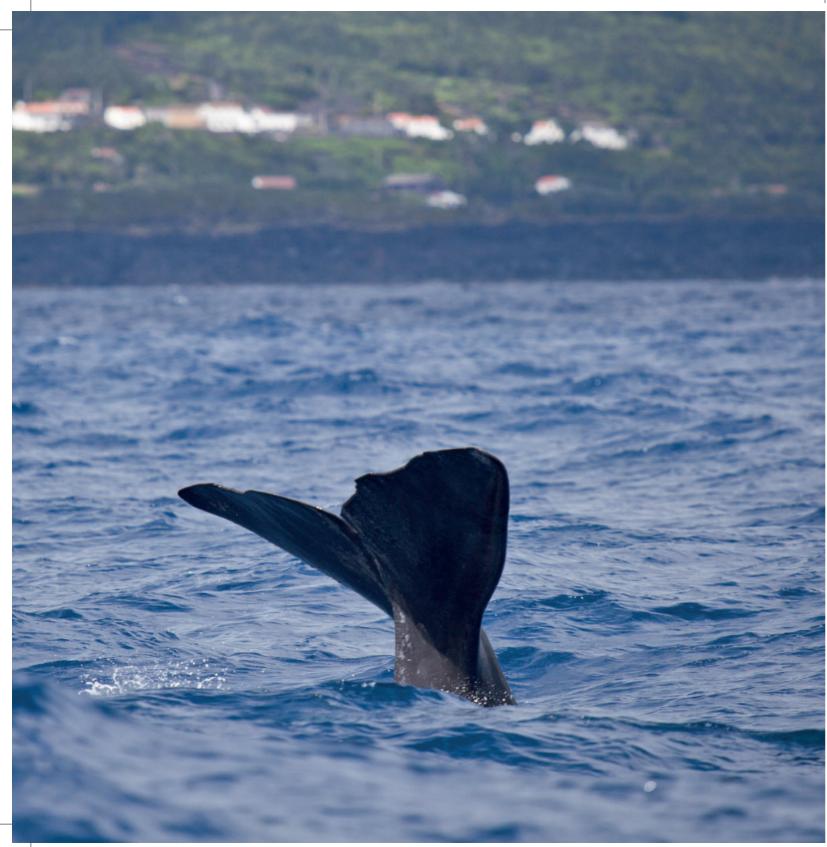


IDENTIFICATION





- Its blow can go up to 9 meters high.
- Its fluke is long and broad, and is never raised before a dive.





- Length: male 18.3 meters (60 feet) female – 11 meters (36 feet)
- Weight: male 57,000 kg (120,000 pounds), female: 240,000 kg (55,000 pounds)
- Average Speed: 5.4 11 km/hour (3.4–7 mph)
- Fastest Speed: 22 km/hour (13.8 mph)
- Life Span: 70 years



FACT: The sperm whale's brain is 5 times heavier than a humans.

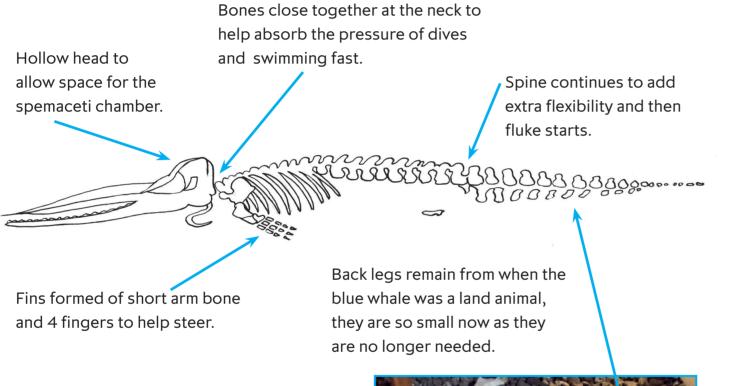


- The sperm whale is the largest of the toothed whales.
- The males can weigh as much as 740 humans – the equivalent of 4.75 elephants.
- The name sperm whale comes from the oil that can be found inside their heads which is called spermaceti.

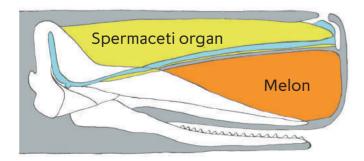


 \bigcirc PERM WHAL 1





Spermaceti chamber:







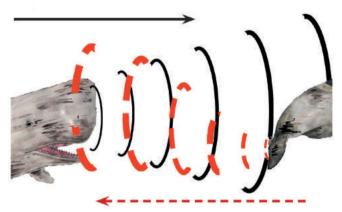
• Sperm whales use echolocation to hunt.

- As they dive deep under the sea, their surroundings are very dark. This means that they cannot see very far, so they use echolocation to help find things.
- Echolocation is where a sonar signal is sent from the head of the sperm whale. When the signal hits an object it is reflected back to the whale, where they can then form a picture of what is in front of them.



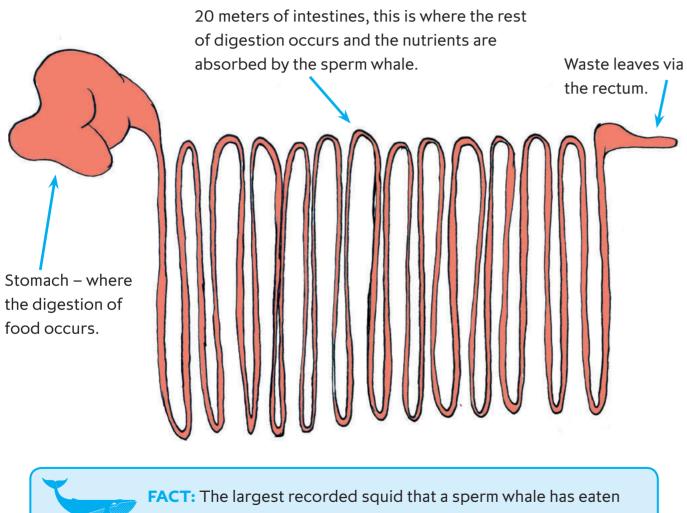
ECHOLOCATION

Signal sent out



Signal bounces off the object, back to the whale

JIGESTIVE SYSTEM



- The sperm whale is the largest of the toothed whales.
- They have 20–26 pairs of teeth in their lower jaws.
- Their upper jaws have holes matching the teeth in the lower jaws so that when the sperm whale closes its mouth, they slot into them.
- The teeth seem to just be used for catching their pray as they swallow their pray whole.



was 12 meters long (40 feet)!

34

TEETH -







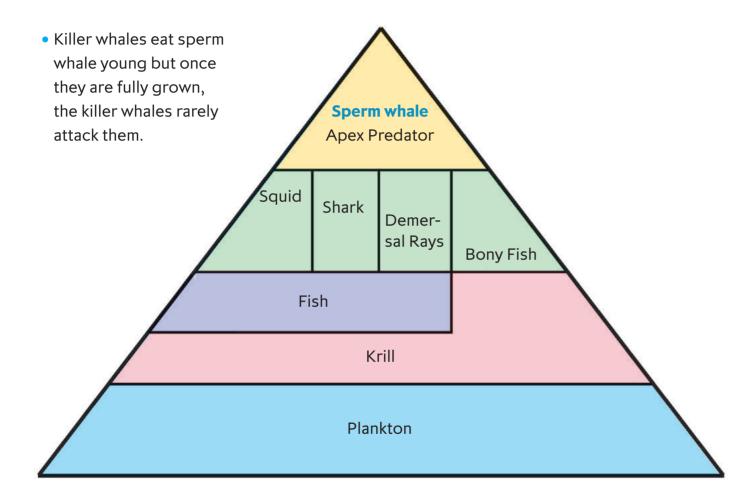
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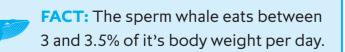
MIGRATION PATTERNS

 Sperm whale females don't migrate. The males do but tend to move to and from female groups. The blue area on this map shows the area the sperm whales cover.















REPRODUCTION

- Sperm whales have 1 calf every 4–6 years.
- They are pregnant for 12 months.
- The calf is 4 meters long and weighs 1000kg when it is born.
- The calf feeds on its mum's milk for 2 years.
- They reach sexual maturity at 7–13 years old.
- Mating season is in spring.



CLASSIFICATION & CHARACTERISTICS

- At the age of 6, male sperm whales leave their mothers and live in bachelor groups until sexual maturity.
- Female sperm whales live together in a stable, matriarchal society.
- Due to the scars and broken jaw bones, it is presumed that sperm whales fight amongst themselves.





- Sperm whales are currently listed as Endangered with an estimated 200,000
 – 1,000,000 left in the world.
- There are 3 types of sperm whale: Physeter macrocephalus – Sperm whale Kogia breviceps – Pygmy sperm whale Kogia sima – Dwarf sperm whale



JDENTIFICATION States



- On the fluke of the sperm whale, notches can be seen which are unique to that sperm whale.
- Their unique and large head identify them as sperm whales.
- In 75% of females, rough patches of skin occur.
- Their dorsal fin is low and rounded.



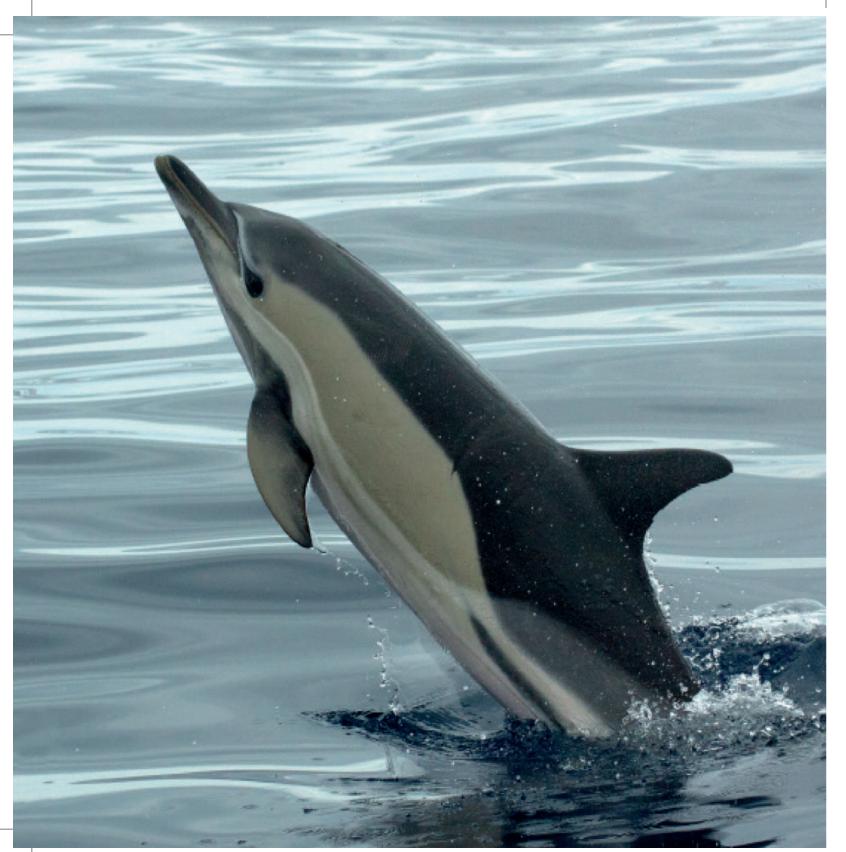
- Their bodies are long with a block shaped head, similar to a torpedo.
- Unlike baleen whales, sperm whales only have one nostril placed on the left hand side of their head meaning their blow is at an angle.







FACT: The sperm whale was the inspiration behind *Moby Dick*.





- Length: Male 2.7m (8 feet 10 inches), female – 2.6m (8 feet 6 inches).
- Weight: 100–140 kg (220–300 pounds)
- Average Speed: 24 km/ hour (15mph)
- Life Span: 35 years



Whales_INT_NEW.indd 42-43

SIZE SIZE

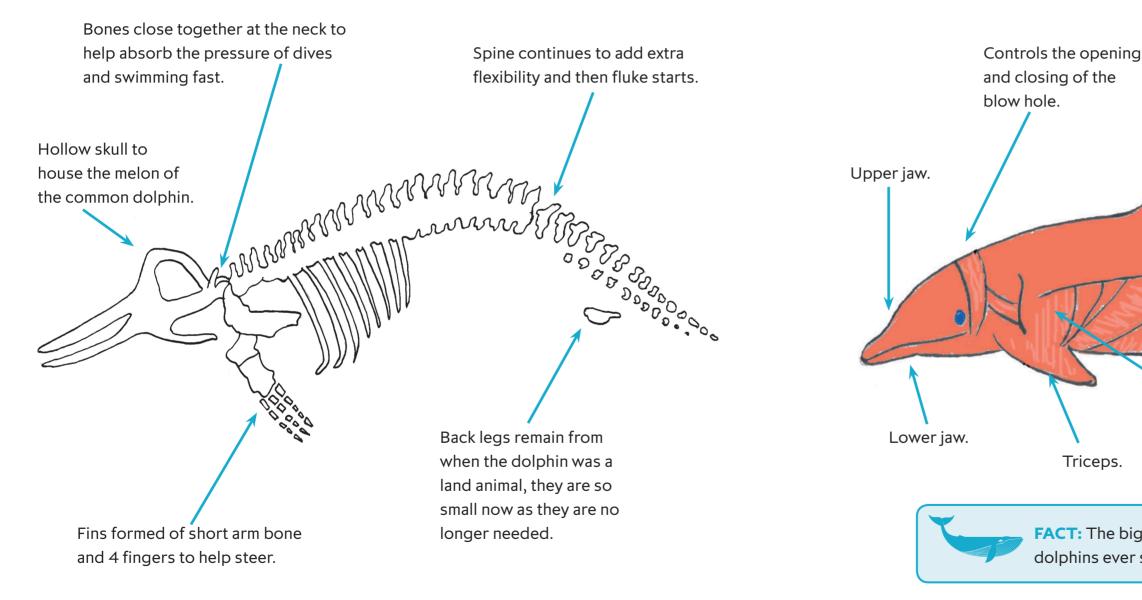
- The short-beaked common dolphin is one of the smaller dolphins in the world.
- It is only 3 feet off the length of an average human
- They weigh the same as 0.008 elephants - that's about as much as its foot!
- They are named common dolphin as they are often seen all over the world.

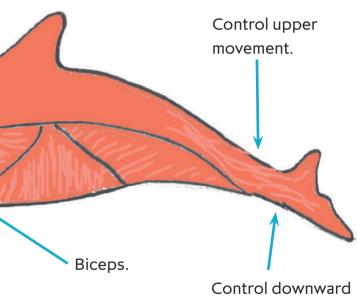


COMMON DOLPHIN







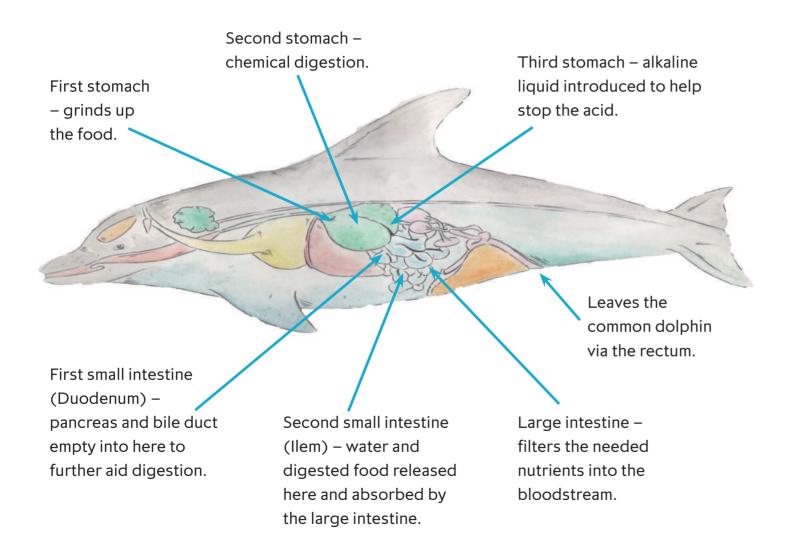


movement.

FACT: The biggest number of common dolphins ever seen in one group was 10,000.

JIGESTIVE SYSTEM

TEETH -



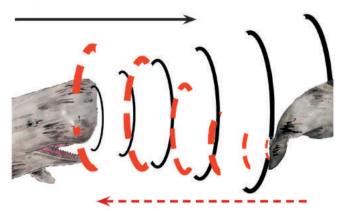


ECHOLOCATION

- Common dolphins use echolocation to see underwater.
- They send out a signal and when it hits an object it bounces back to the dolphin.
- Their melon receives this information and changes the signal into a picture so the dolphin knows what is in front of them.

- Dolphins are part of the toothed whale and dolphin family.
- They have 41 54 pairs of teeth on the top and bottom of their jaws.
- They don't eat their prey instead they swallow it whole, so experts are unsure what they use their teeth for?

Signal sent out



Signal bounces off the object, back to the dolphin

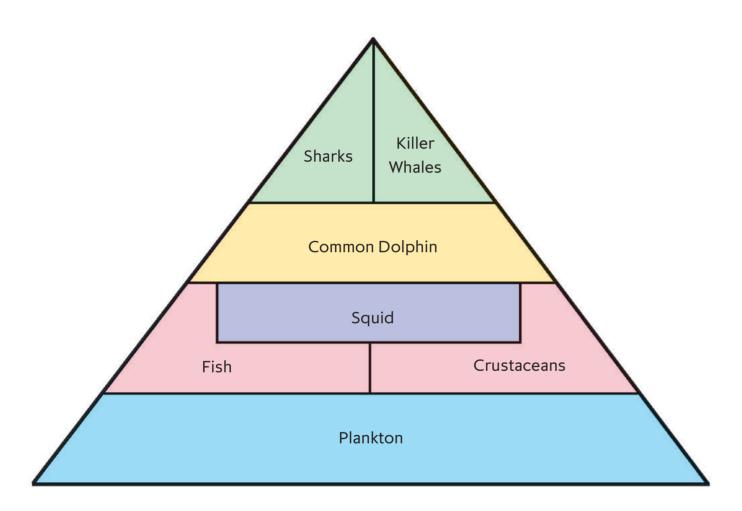
MIGRATION PATTERNS

48

 Short-beaked common dolphins don't migrate. They stay in the same waters all their lives. Occasionally a male will venture to another pod. The blue areas indicate where they can be found.



FOOD CHAIN V



FACT: The dolphins described by the Ancient Romans and Greeks were common dolphins.



- Common dolphins have one calf every two years.
- They are pregnant for 10–11 months
- The calf is 80–100 centimetres long when it is born.
- The calf feeds on its mum's milk for 10 months.
- They reach sexual maturity at 5–14 years old.
- Mating season is all year long but it peaks in late spring/early summer.



REPRODUCTION



- The females will mate with the male who shows himself to be the strongest dolphin.
- A common dolphin is born tail first unusual as most mammal young are born head first.
- Common dolphins live in a society, when giving birth, other dolphins help the mother – a little bit like midwives.

CLASSIFICATION & CHARACTERISTICS



- Can dive 200 meters down.
- They are eager bow riders.
- They are very acrobatic and love to play at the surface of the water.
- They have been known to cover 270 nautical miles in just 10 days.
- They are mammals, meaning they are warm blooded and give birth to live young.
- To make sure they keep coming to the surface for air, common dolphins only sleep with half their brain, so the other half is awake to breathe and keep watch.

- There are two types of common dolphin: Delphinius delphius – Short-Beaked
 Delphinius capensis – Long-Beaked
- There is an estimated 3 million shortbeaked common dolphins world wide.
- They are classed as Least Concern on the endangered scale. However, in the Mediteranean they are classed as Endangered and the Black Sea population are Vulnerable.

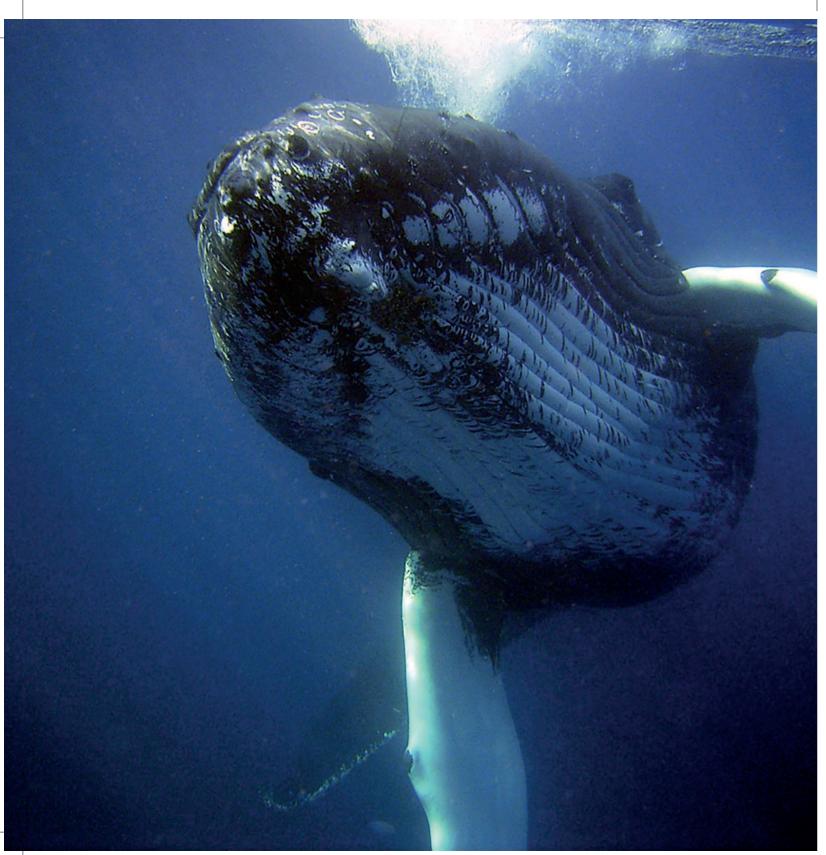


JUENTIFICATION States





- The easiest way to spot a common dolphin is their markings. They have an hour glass shape on their sides, the front is yellow and the back is grey. The top of their bodies, including the dorsal fin are black whilst their bellies are white.
- Similar to the whales, notches and scars on their dorsal fin or fluke can help identify the dolphins.
- Other markings can include birth defects, such as deformed beaks or deformed fins.



WHERE DO WHALES LIVE?

Whales can be found in oceans all over the world from the Arctic to the Antarctic. Different whales like to live in a variety of environments. Some like it warm, like the grey whale who spends most of the year near California, and some like it very cold, like the killer whales who spend most of their year among the icebergs.



Whales_INT_NEW.indd 54-55

Killer whales – travel through all the oceans, but like cool climates, they migrate around the oceans to find their prey.

Humpback whales – can be found all over the world, however they prefer the cold waters in and around the Arctic and Antarctic oceans.

Blue whales – can often be seen swimming in the colder regions during feeding season and will migrate towards tropical waters to have their young.

Sperm whales – female sperm whales and their young prefer to stay in near tropical waters all year-long. Males travel back and forth from the cold climates to the warm climates.

HABITATS



Whale Food

Whales eat a large variety of food, this mostly depends on their size and whether they are a baleen whale, or have teeth. Large baleen whales like blue Whales eat tiny little animals like plankton and krill. Whales with large teeth like sperm whales eat fish and squids. Killer Whales are very special, they hunt in groups which means they can eat much bigger animals like seals, penguins and sharks.

Migration

Whales are a travelling species, they like to move all over the world. This is normally to find food, or to mate and have their young. Some whales can be pregnant for 17 months to allow the mother to travel from her cold feeding grounds to the warm tropical ocean where she will look after her young.

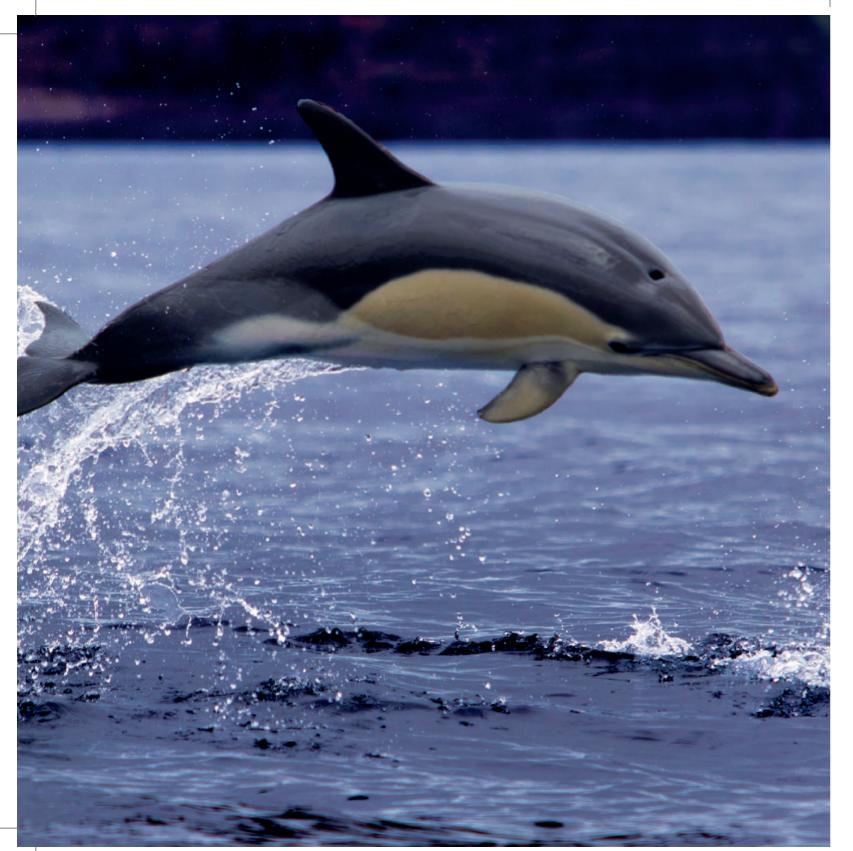
> Fact: Humpback whales are the mammal that makes the longest journeys in the world.

Climate

Whales can survive in very cold climates and warm climates. Most migratory whales feed in colder waters in the Arctic and Antarctic Oceans because there is generally more food for them during the feeding season. Female whales migrate to warmer waters to have their young because there are less predators, like killer whales and sharks, there to hunt their young.







WHAT ANIMALS SHARE THEIR HABITAT?





Whales_INT_NEW.indd 58-59

Bottle Nose Dolphin

Dolphins are one of the most intelligent animals in the sea. They travel in groups called pods. Bottle nose dolphins can swim at speeds of 18 miles per hour, lifting their head out of the water every 2 minutes to breath air through their blow hole.

They communicate with each other using whistles, clicks and squeaks and have a curved mouth which makes them look very friendly.

These dolphins are large mammals that can grow up to 4.2 metres and weigh around 500kg! Bottle Nose Dolphins are meat eaters, they hunt small fish and live in the warm tropical waters around the globe.

> FACT: Dolphins can jump 4.9 metres into the air – that's the same height as 3 tall men!

Loggerhead Turtle

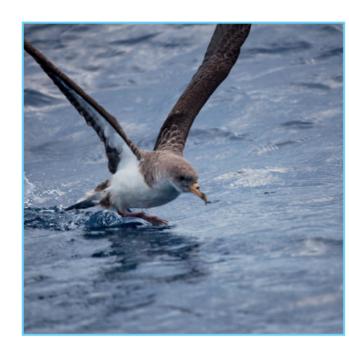
Loggerhead turtles are the most abundant turtles in the world, they live in all of the oceans and seas except for the coldest Arctic and Antarctic. They prefer to live in coastal waters near land, they are sometimes found in rivers lakes.

Loggerhead turtles are the largest of the hard shelled turtles, leather backs are much bigger but they have a soft shell. Adult males can weigh up to 113kg and can reach 1 metre in length. Females are usually smaller, but a few turtles have been known to weigh nearly 500kg, that's half the weight of a car!

Loggerhead turtles are carnivores and like eating jellyfish, crabs and small fish. Loggerhead turtles go on a very long journey through their lives. The females lay eggs on a beach and then leave their young to hatch alone. When the babies are old enough they swim to the feeding grounds thousands of miles away. They stay there for several years until they make the journey back to lay their own eggs.







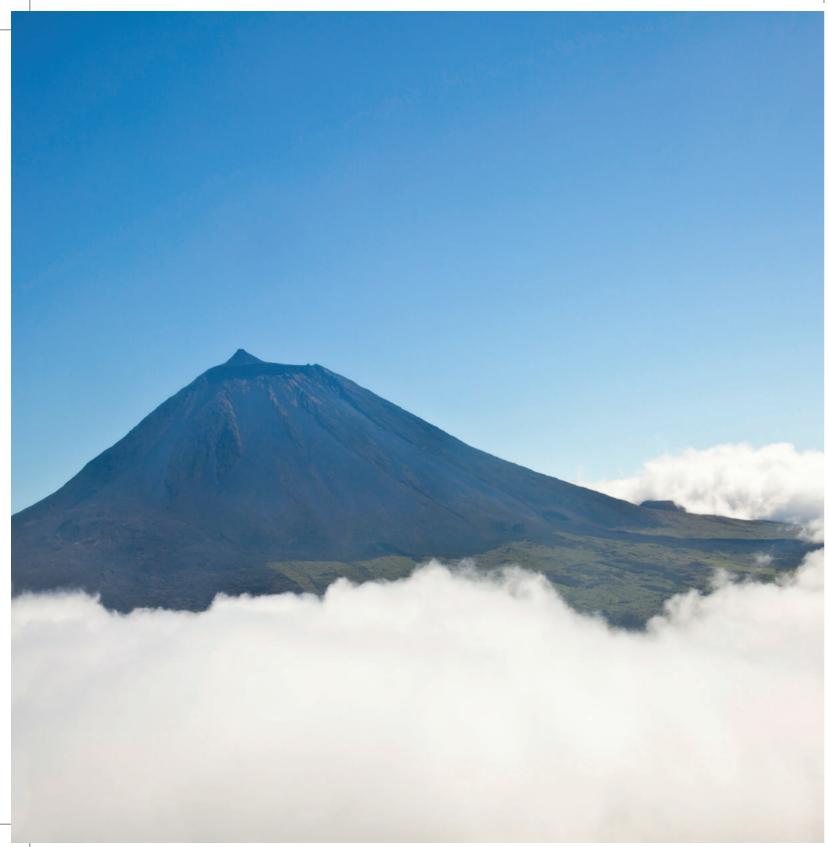


Shearwater

There are lots of different species of shearwaters around the world, there are 35 different species in North America alone. They are found all over the world in unfrozen waters. Shearwaters are a type of gull, but they have some very special talents. They can dive several metres below the water to catch their prey, and they can run on water! They use the water like a runway to get their speed up to be able to fly once they've caught their prey.

Portuguese Man Of War

The Portuguese Man Of War is an unusual creature. It looks like a jellyfish but it is actually three animals all working together. The sail on top is one animal in charge of transportation. The body is another animal in charge of eating and reproduction, and the tentacles are the other animal in charge of defence. Man of War stings are extremely painful for humans, but very rarely deadly. Their tentacles can grow up to 50m long and will cause nasty rashes and scars.



THE AZORES

The Azores have a very long history with whales, for several hundred years the Azorean people hunted sperm whales to make money for their families, but by the end of the whaling industry they had developed a new relationship with the many different species of whales that call the Azores home.

Today tourists from all over the world come to the Azores to watch the whales in their natural habitat. During the months between March and September tourists get the opportunity to see sperm, blue, fin, humpback and sometimes killer whales.

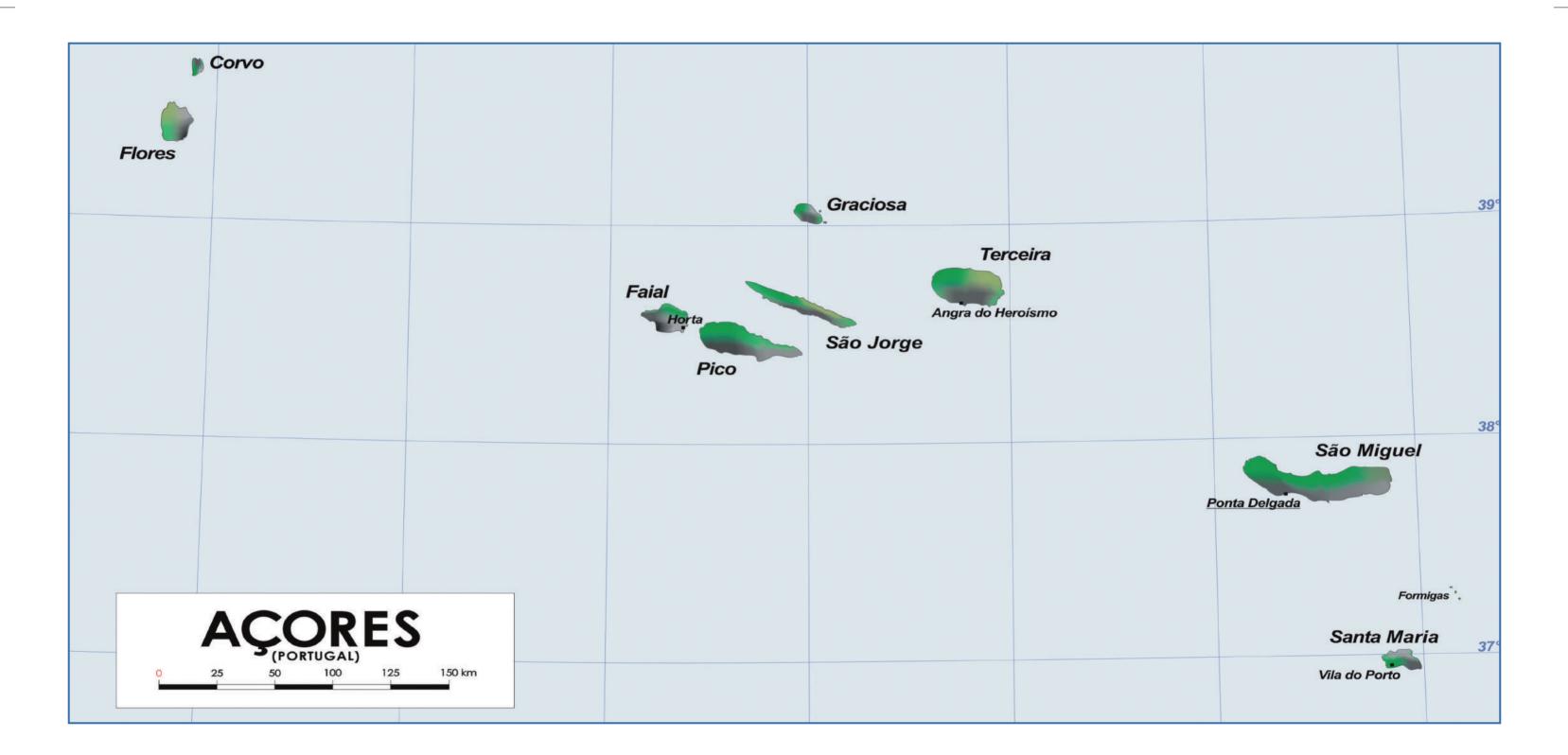


The Azores are home to huge variety of marine life, including whales, dolphins, sharks, turtles and thousands of species of fish. The Atlantic Ocean around the Azores is extremely deep, nearly 2000 metres just a few miles from land. The ocean here is warm throughout the year.

The islands provide shelter for the animals, and the deep warm waters are full of food, the Azores are a great service station for animals on their migration. They mostly stop off to refuel before continuing their trip.



THE AZORES



GEOGRAPHY S

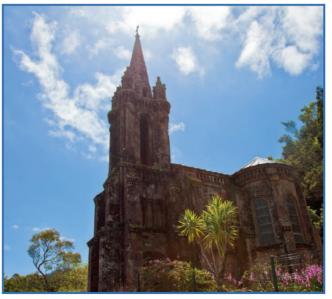
Facts

- The Azores are in the middle of the Northern Hemisphere.
- The archipelago is in the Atlantic Ocean.
- There are 9 islands in the Azores.
- Sao Miguel is the biggest island and is home to the capital city of Ponta Del Garda.
- The weather in Azores changes very quickly.
- The Azores islands are part of Portugal.
- Portuguese is the main language spoken.

The climate

- The climate in the Azores is warm and wet, the maximum temperature is around 25 degrees and the minimum is around 11 degrees.
- They have a lot of rainfall with over 1000mm of rain a year. This means that the islands are a perfect place for plants to grow and the islands look lush and green.





Volcanoes and Earthquakes

The Azores were created by lots of volcanic activity. They are located above the cross over point between the American Plate, the Eurasian Plate and the African Plate, this is called The Triple Junction.

The islands experience earthquakes on daily basis because of their location. Most of these cannot be felt, they are very low on the Richter scale. The last large earthquake was in 1757 and exceeded 7 points of the scale, less than 5000 people were killed.



There are hundreds of volcanoes in the Azores, most are still active, but they have not experienced an eruption on land since the early 1800's. However there are often eruptions under the sea which can produce a new tiny island, these sometimes become a wildlife preserve.

The volcanic activity makes the land of the Azores very fertile. A large variety of plants and fruits are grown across the islands, including: grapes, figs, oranges, bananas, tobacco and sugar cane.

The heat of the volcanoes push rocks from below the surface up on to the land. The Azoreans use these rocks to build houses. shelters for their animals and lookout towers.

The Azoreans also use the heat from the volcanoes to create geothermal energy which powers their electricity and heating.

The volcanoes also create natural hot springs. The lakes and ocean around the islands are heated by the volcanoes to make nice warm swimming pools!

People who live in the Azores

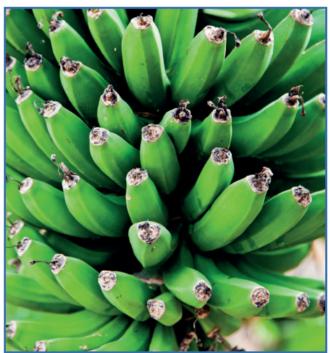
There are under 250,000 people living in the Azores with 137,000 living on Sao Miguel, and only 430 living on the smallest island of Corvo.

The Azores is owned by Portugal which means that a lot of the culture there is similar to Portuguese. The main religion is Roman Catholic, and the language most spoken is Portuguese. Many of the festivals celebrated by the Azoreans are for saints, each town or village has a patron saint, and they are celebrated with festivals that can last 3 days.

Many of the people who live in the Azores work in farming or fishing. There are some small cities where people may work in shops, restaurants and offices, but most Azoreans like to work on the land or at sea.

Tourism is a growing industry in the Azores, there are several companies that take tourists of tours of the islands and provide whale and dolphin watching trips from Sao Miguel, Pico and Sao Jorge.









Who discovered the Azores

The Azores were registered on maps a long time before they were officially discovered in the 14th Century. They were known to sailors who did regular crossings between Europe and America, and used the islands for shelter during storms.

It was Diogo de Silves in 1427 that confirmed the discovery of the islands in the name of Prince Henry of Portugal. In 1432 a crew of 12 disembarked on the island of Santa Maria and set up camp.



The First Settlers

It took a long time for the Azores to become occupied, before people could live there they had to clear the bushes, trees and rocks to find areas where they could grow food and build shelter. A lot of sheep were released on to the land before people lived there to help cultivate the land.

The first settlers were a mixed group of people from the Portugal. Also, Madeirans, Moorish prisoners, black slaves, French, Italians, Scots, English, and Flemings were among the early settlers. There were petty criminals, Spanish clergy, Jews, soldiers, government officials, European merchants and sugar cane growers.

Soon after the first town was set up, settlers began to move from Portugal to the Azores. The fertile soils brought farmers from far and wide wanting to grow their fruits and vegetables. The Azores were a frequent stopping point for ships in the Atlantic which meant that many people from Europe and America decided to stay on the islands. It also made it easy for the farmers to sell their produce to sailors from different countries and open up an international trade.

The islands were colonized under the Holy Order of Christ, and the settlers became Christians. There were many languages, but after a while Portuguese became the standard language of communication. Because of the isolated nature of the islands, and the harshness of the land, all settlers, regardless of their background, had to work together to survive. This gave the people a sense of equality and togetherness and gave all settlers the right to purchase their own land, though many were too poor to do this. There were some slaves on the islands, and there were concerns about a slave revolt which no settler wanted. So the slaves were soon sent to Brazil and to the Caribbean.

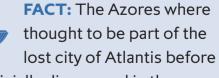
At its busiest time the Bay of Angra had over 100 ships mooring in a day to pick up

new supplies, give supplies to the Azorean people and repair the boats which were damaged in storms in the Atlantic. Pirates used the bays in the Azores to hide from British Navy ships. They also used their hiding places to attack Spanish ships full of gold.

The Second World War

During the Second World War the Portuguese allows the German U-boats and the British Royal Navy to pick up supplies and refuel. This was a very important service during the Battle of the Allies in the Atlantic Ocean.

Although the Azores did not fight in the Second World War, their support of the British Navy allowed the British to protect their convoys and defeat the German U-boats.



they were officially discovered in the 14th Century.





Whaling around the world

Whaling has been happening all around the world for hundreds of years. Tribes from different countries learned quickly that whales could provide food, clothes, oil and many other produce that they could use to survive. Some people hunted whales as a sport, others hunted whales to help their families survive.

Today whaling is a controlled activity, there are many laws surrounding the hunting of whales that help stop some species becoming extinct. There are some countries that still hunt whales, but they can only hunt a restricted number, and only for specific reasons.



FACT: Azorean whalers are mentioned in the famous book *Moby*

Dick by Herman Melville.

Whales INT NEW.indd 72-73

WHALING S

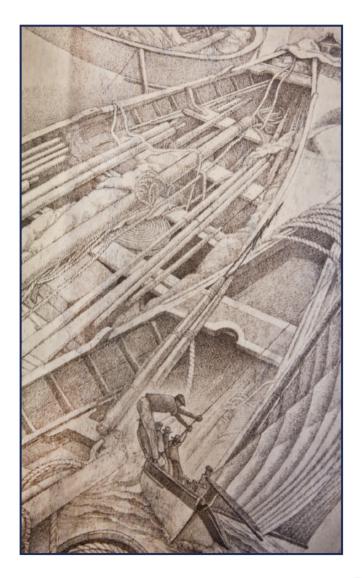
Whaling in the Azores

Whaling was an activity that was practiced in the Azores for hundreds of years. The people of the Azores realised that they could use a whale for a variety of produce, and so began to hunt sperm whales.

From the early 1700's whale hunters from America and England would stop in the Azores to refuel and repair their ships. They would hunt hundreds of whales in the ocean around the Azores. These hunters quickly realised that the Azoreans were the most effective whalers, they had the most impressive techniques and would catch the most whales. The captains from America and England began employing Azoreans on their ships to hunt whales, their payment was often a free passage to the New World (today known as America).

WHALING

WHALING IN THE AZORES



Why did they hunt whales?

The Azorean people were very poor, and the money made from hunting whales helped to feed and clothe their families. Until the 1970's the Azores did not have mains electricity which meant they relied on oil lamps and small generators to light their houses, streets and keep machinery going.

The people who lived on the islands relied on the crops and animals for food, and got some small supplies of clothes and luxuries from passing ships. Most of the clothes they wore were made from wool and leather from their animals, and were made at home. Whaling was an excellent way for the men in the families to make extra money to buy food and other necessities for their families.

Most whalers had another job – farmers, blacksmiths and bakers. They worked and lived in small communities near the sea. The Azorean people only ever hunted sperm whales. This is because sperm whales have some unique features which were important for people to use. In the top of the sperm whales head there is a large cavern filled with a wax called spermaceti. This wax is very valuable, it can be melted down and used as oil for machinery and lamps. Once they had taken the oil from the whale, they used the skin and flesh for flour to feed their cattle. But the most valuable part of a sperm whale was the amber in their stomach. Amber is a precious stone which sperm whales digested when they were hunting squid. This amber was sold on the market and the money was divided between the whalers who had caught that whale.

The Azorean whalers learned very quickly that sperm whales were the most useful to them. They actually called other whales, like baleen whales, fish because they didn't think that they had any value to them. To the Azorean people sperm whales, were the only whales in the ocean, all the others were fish.







Whaling Rules

The whalers had to work around strict rules. These were to make sure that they stayed as safe as possible, and preserved the whale population. They would not kill a whale under 10m, these were usually young whales. They would not kill a pregnant whale. Once they injured a whale they made sure to kill it, so that it did not suffer in the wild.

Whale Products

The whalers made sure that they used all of the whale. The bones and teeth of sperm whales is extremely strong. The Azoreans used this bone to make tools as it is stronger than the wood they were using. They also used the bone to make jewellery, combs, chess sets and lots of other trinkets. Whale bone artefacts were very expensive to buy, and many artists used it to draw scenes of the sea by scratching ink into bone pieces. Today it is illegal to take whale bone artefacts out of the Azores. Some organisations still sell whale bone artefacts but most have been replaced by a plastic that looks very similar. Many of the special artefacts made with whale bone are in museums.





Vigias

Whaling was an exceptionally dangerous activity. The Azoreans developed a very specific way of hunting whales. They built lookout towers on small hills that over looked the ocean. It was the job of a vigia to use binoculars to look out at the oceans for signs of the whales. This was usually the blows of air as the whale surfaced. Imagine how hard that was to see!

When the vigia saw the whales he would send a signal to the local whalers, either a firework, or in more recent times using a radio to tell them the whales were near the port. When the vigia had radio he would direct the boats in the right direction to find the whales. Vigias had to be extremely alert and knew the whaling teams extremely well. Vigias who had been working for the whalers for a long time would know how fast the teams could row, and how fast the whales were swimming, he would calculate which direction the whalers needed to row in to meet the whales. They were very skilled people indeed.

The Whaling Boats

The whalers were usually at home or at work when the signal was sent . When this happened they had to immediately leave their tasks and run to the port and get the whaling boats.

Whaling boats are small 12 metre canoes that held space for 7 men and a small mast. In older times they would row from the port out to sea and wait for the whales to surfaces. In more recent years they were towed out by a larger boat with an engine.



Once the larger boat got them out into the ocean near where the whales were sited it would cut them loose and the men would row or sail closer to the whales. This was effective because the whales were not frightened away by the noise of the engine.

The whaling boats were extremely fast and light to cut through the water when they were chasing the whales. The usually had individual designs on them and had a saint painted on the inside to protect the team working on them.

Whaling

Once the boats had found the whales it was up to the captain to give orders and manoeuvre the boat parallel alongside the whale. There was one harpooner per boat, whose job it would be to throw the harpoon into the back of the whale, this was attached to rope, with was attached to the boat. If the whale dived the harpooner would have to cut the whale free and they would wait for it to surface. Once the whale was injured the whalers would throw a lance (a very sharp metal rod) into the whales heart to kill it as quickly as possible.

When the whale had been killed the large boat would return and tow the whaling canoe and the whale back to shore where it would be pulled up the harbour and into the whaling factory. It was then the teams job to process the whale inside the factory, collect the oil for the machinery and make the flour for the animals from the whale body. If other whales were sighted during this time, the other whaling teams would return to the sea, whilst the team that captured the whale stayed working in the factory.

The Whaling Team

Each whaling boat held 7 men, one captain and one harpooner. There were often several teams in the same port and each team was named the same as their boat, and had specific colours. This made it easier for people to know which boat was which. When the whales were spotted it was often a race between the teams to hunt and capture it. On the smaller islands the team that captured the whale got their wages, those that didn't had to do without the extra money. This meant it was very competitive between the different teams. On the bigger island of Sao Miguel the whalers were all paid the same, however this did not stop the teams competing and scoreboard was kept throughout the year. The boat with the most wins received a small prize at the end of the year.

In some villages in the Azores the local community would pick a team to support, like football today they would cheer their team on from the village and wait to find out who had won that day. The team who killed the whale would be celebrated when they returned to port.





Whaling Today

Whaling is a banned activity in most places today, it is illegal in the European Union. This meant that when Portugal joined Europe in 1986, the Azoreans had to stop their whaling activity. However, most the whaling had stopped before this point, and it was only on the island of Pico where some whales were still captured.

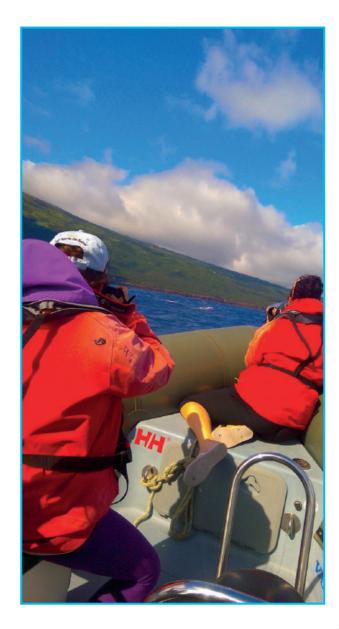
There are some countries around the world where whaling is still practiced. In Greenland and Iceland there are some small tribes of people who hunt whales, however this activity is very restricted, they may only kill 150 whales per year. This rule means that their activities do not impact on the whale population. These people are only allowed to continue to hunt whales because it is a part of their unique culture, and helps to feed their people.

Some countries like Japan continue to hunt whales for the purpose of scientific testing. However, whale conservation charities do not agree with this and continue to fight against the right to hunt whales. Whaling was banned internationally in 1986, which stopped all countries being able to hunt whales for commercial reasons, such as selling the meat and oil. This international law was brought in to protect the whale population. Before 1986 over 30,000 whales were being killed over ten years. This meant that the population was not recovering and they were going to become extinct. Today, because of the conservation law, whales are protected by governments and charities, which means they are free to live a healthy life.









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WHALE TOURISM V

Whale Tourism in the Azores

Once the whaling had stopped in the Azores the relationship between people and whales was non-existent. However in the late 1980s some small companies began to set up whale watching tours. At first it was for local people and some small groups of tourists. These companies also helped researchers find whales to observe and study. The whale watching companies use these trips to educate people about the different species of whales and dolphins. More than 20 species of whales and dolphins can be seen in the ocean around the Azores.

WHALE TOURISM

FACT: 13 million people go whale watching every year, all over the world.

You can see whales from all the islands in the Azores, but the most popular are Sao Miguel and Pico, these have the most whale watching companies on, and have the biggest variety of whales.

Although some whales and dolphins can be seen all year round in the Azores, these are called resident species, most are visiting as they travel on their migrational journey. Whale watching season begins in March and ends in October, during these months whale watchers have a 97% chance of seeing whales on their trip.

Resident Species

Sperm whales Bottle Nose dolphins **Common Dolphins**

Migratory Species

Blue whale Fin whale Humpback whale Sei whale Minke whale Pilot whale

Rare Visitors

Killer whales False Killer whales



Whale Protection

During the whale watching trips the tourists and companies must be very careful not to disturb or endanger the whales. European laws ensure that all whale watching boats must stay over 50 metres away from the whales, and must never cross or approach them from behind. The boats must stay parallel to the whale. They must also lower their engine speed when close to the whales. These rules mean that the boats won't frighten the whales or disturb their activities. It also means that whales will not get agitated, which would put the whale watchers in danger as well as the whale.

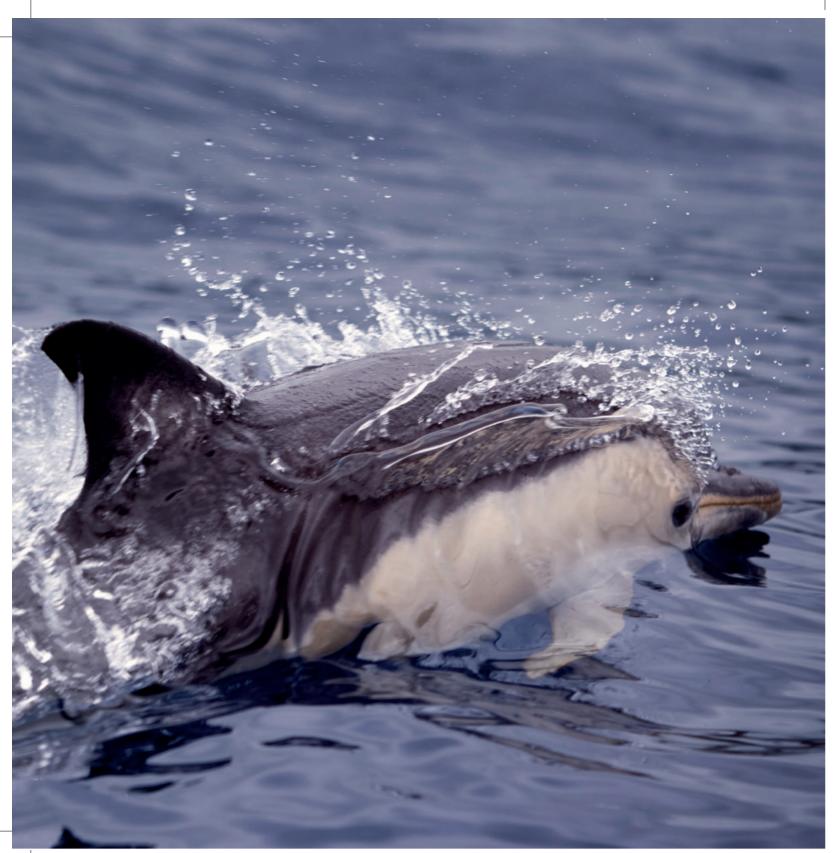
If the whale companies want to do research they must ask for special permission for a research boat to approach the whale closely, and for a team to be able to enter the water with the whale. This research is and not in front of the public.

During the trips out on the boats the marine biologist on board will explain to essential but must be done under strict rules the whale watchers the respect needed for these animals. They will also give information about the whales that are seen, They are also responsible for not littering and answer any questions the tourists might have about cetaceans or other into the water. In fact if they see litter in the water they will often stop to pick it up. marine life.

Whale Conservation

Conservation is the protection of wildlife around the world and there are many different charities and organisations dedicated to preserving the whale population. They support the laws that stop whaling, work with universities to carry out research, and protect the oceans from environmental dangers like litter and global warming.

The main objective of the whale watching companies is to educate the local people and the tourists about the importance of whale conservation. It is important for both of these groups to have an understanding of how whales live, what they need from their environment and to develop a positive relationship with the creatures.



THE ENVIRONMENT -

Global Warming

Global warming is huge issue for whales and dolphins to deal with. The main problem for them is the changes in the sea temperature. Whales are migratory animals, they move into different areas of the oceans at different times of the year. The main way for them to know to do this is the change in water temperature. As global warming increases the sea temperature increases, this can confuse the whales and stop them from migrating at the right time of year.

This has immense effects on the whales, if the sea temperature is higher, then their prey may behave differently. When whales move to their feeding grounds their may be less food for them there. This eventually means that the whales will be under weight and not strong enough to make their next long journey. If whales cannot complete their migration then they will not be able to

Whales_INT_NEW.indd 88-89

mate and have their young, which will eventually decrease the population and they may become an endangered species. As the ice caps in the Arctic and Antarctic melt they are diluting the amount of salt in the oceans water.

Whales are saline animals, which means they like to live in salt water, as do their prey. By having less salt in the water some fish species will not be able to survive, and so the whales will have a much smaller food source. Due to global warming there is much more carbon dioxide in the water. This is extremely dangerous for whales and dolphins as it can cause cetacean illnesses and disease.

All of these problems lead to whales not being able to reproduce. It takes a whale long time to produce a baby, so experts are concerned that if they slow the process down much more some species of whale may become extinct.

Pollution

There are many different types of pollution in the oceans. From plastic bottles to oil spills they all effect the lives of cetaceans.

Chemical Pollution

The most toxic form of pollution for whales and dolphins is chemical pollution. This is caused by chemicals from ships leaking into the water, chemicals that farmers use on their crops that run into the rivers and then into the ocean and chemical from the waste we produce.

Whales and dolphins are affected the most as they are, more often than not, the top of the food chain. Plankton absorbs the toxic chemicals in the water, and the plankton is eaten by fish. So if all the fish have been infected with the chemicals and the whales eat these fish, then the chemicals build up inside their system.

Sadly, there is no way of stopping this cycle. Organisations around the world are all working to reduce the chemicals spilled into the oceans and help save these animals.

Waste Pollution

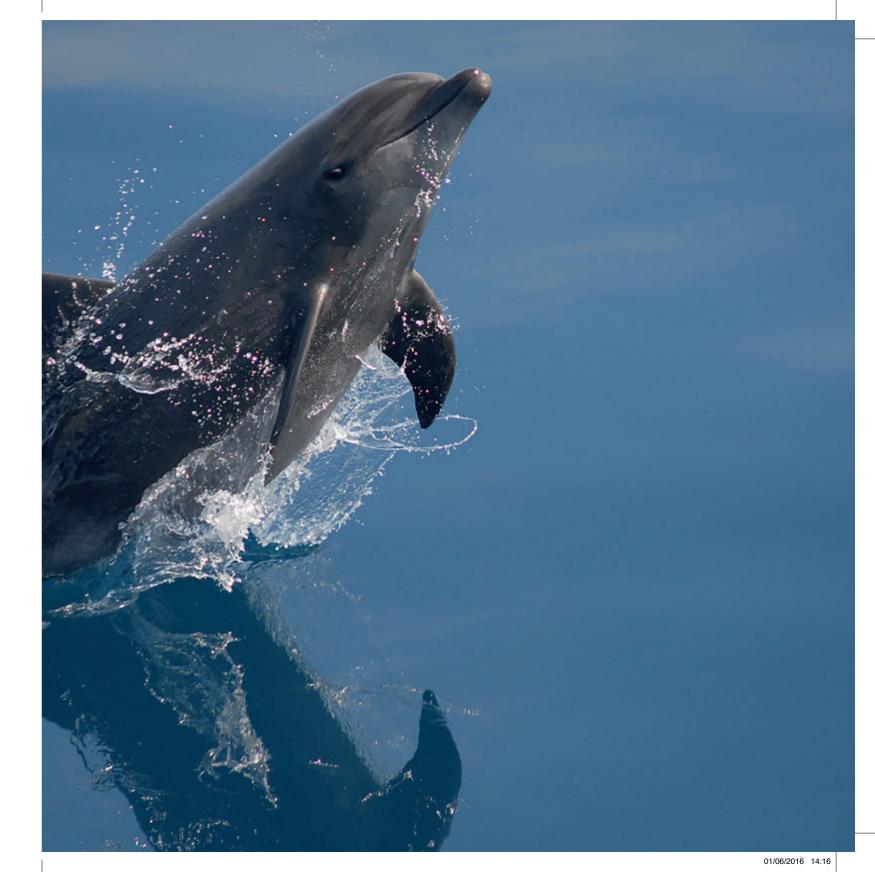
There is plenty of waste that is dropped into the ocean on a daily basis, which causes lots of issues for all types of marine wildlife. The biggest issue for cetaceans is that some of the smaller mammals swallow these pieces of rubbish. Even the enormous Blue whales would struggle to swallow a 1 litre Coca Cola bottle!

Oil Spills

Oil spills happen all around the world, and are extremely dangerous. The oil is toxic to marine animals, it sticks to their skin and gets in their lungs, sadly it is often fatal. When an oil spill happens it can take a very long time to clean up and the effects of the oil can reach for thousands of miles around.

Nets

Whales and dolphins often get stuck in fishing nets that have been left in the ocean. This is dangerous because these animals need to come to the surface to breath and if they get trapped below the surface in the net they can drown. Netting is now regulated in areas where there are a lot of whales.





I am The Ocean I am wider than you can see I am deeper than you can ever know I am powerful. Constant. Always watching.

You think you can take from me and I don't see it? You think you can sail on me and I don't feel it? You think you are the masters of me? No. I allow you to sail on me.

I am The Ocean. I am wider than you can see. I am deeper than you can ever know. I am powerful. Constant. Always watching.





The Ocean

- I allow you to take my fish.
- I allow you to survive near me.

Helen McGlasson





A Whale Secret

Beneath the blue mirror Deep down in the depths Something is lurking Beyond the sand steps It moves with a purpose It sings its own song It knows when you're coming Its known all along It swims with the fishes It sings with the waves It moves through the current Through the green seaweed glades And if you may see it There's something you should know This whale has a secret It doesn't want to show.

Abigail Law





Said the Mermaid to the Starfish

Said the Mermaid to the starfish Have you heard what's happening here? Many people come in boats And it's filling me with fear! They've come out here to shoot our whales That's what I hear them say How can we make them stop this now and make them go away? But the flying fish plunged down just then Calling, you don't need to fear! As I was flying past their boat, It was easy for me to hear: They've come to shoot but not with guns They say our whales are free! Their photographs will tell the world How whales are meant to be! The mermaid and the starfish laughed And cried with much emotion. That humans had the wisdom now To care about the ocean.









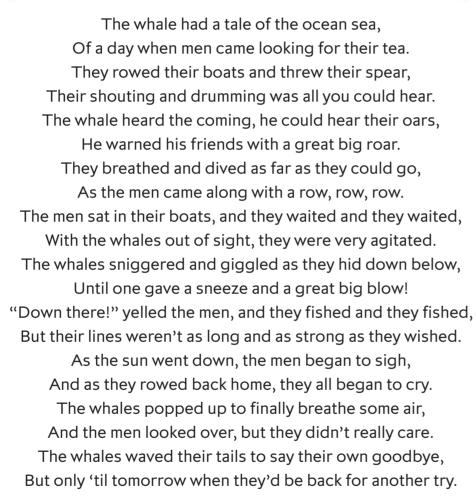


Abigail Law





The Whale who had a Tale





Amy-Louise Thompson

96





Safe Haven

I am only a small cottage On a steep slope High above the sea Nestling against the black rocks My windows watch the waves.





I give shelter to the fisherman I give warmth to his family I cover his children with my roof.

When the winds blow gales When the rain lashes When the ocean crashes I am a safe haven

Helen McGlasson





The Dance of the Fishes

Tonight is the night, there's been whispers all day





But curiosity had got the better of him So towards the boat he swam, and touched it with his fin Next thing he knew, everyone jumped into action Who knew a sea turtle like him would prove such an attraction!

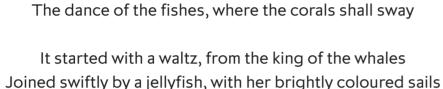
Arms quickly appeared from every direction He couldn't work out which were real or reflection 'Quick, grab him!' they shouted at the top of their voices To dive or to swim, lan considered his choices

Ian looked up into their desperate eyes The swell of the sea making him dip and rise He'd promised his mother that he would be home for tea He checked his watch, it was half past three!

With a swish of his fins he dived under the surface 'I'm sorry' he whispered, 'that I couldn't be of service' On with his journey he continued with no time to explain 'Goodbye my friends' he shouted, 'we shall meet again!'



.



The sea dwellers joined, in an all mighty crowd

The whale took his place, he stood tall and proud

The jellyfish spun, with the current in her sails The whale took a bow, dipped his nose to his tail

The crowd watched silently, waiting eagerly in suspense Only held back by the bright coral fence

Tonight is the night, there's been whispers all day Tonight all the fishes will dance until day.

Abigail Law







Abigail Law





Ian the Sea Turtle

lan the turtle was bobbing along His shell shining bright like an old Chinese gong Across the white horse waves he surfed Swimming across the mermaids turf

When once upon a sunny day He took a trip into Pico Bay And on that day there happened to be A whale watching boat going out to sea

Upon that boat sat eight giggling girls The excitement in their eyes shined bright like sea pearls About the prospect of seeing a whale Even if it be just a fin or a tail

So Ian swam towards the boat Across the blue surface he swam afloat When squeals of excitement projected from inside It's then Ian knew he was in for a ride

100







Whales, Whales, Whales, Whales





- Whales, whales, whales whales,
 - Swimming in the sea
- Pop up to the surface so we can see you, that's our plea.
 - Whales, whales, whales whales,
 - Blow your breath into the air
- We'll snap you with our cameras, so we can show that we were there.
 - Whales, whales, whales whales,
 - Splash the water with your fluke
 - Flick it up and wave it round, so we can have a look.
 - Whales, whales, whales whales,
 - Can you jump up nice and high
 - We would like to take your picture and wave to you goodbye.
 - Whales, whales, whales whales,
 - Diving deep, deep down below,
 - We're heading back to shore now, as we really have to go.
 - Whales, whales, whales whales,
 - Enjoy some rest and food,
 - We will be back tomorrow, when you're in a playful mood.

Amy-Louise Thompson





A Stormy Night

The rain clouds roll in from the sea towards the island

Rain sheets slant down to the land

The stormy waves start to rise on the ocean

Higher and higher

Higher than a man Before crashing down on each other

In a white whirlpool

And through those waves Through all the commotion

Rises the dark shape of the whale

Throwing itself high above the waters

High above the waves

The lightening lights it up A dark silhouette

Against the stormy sky

Before crashing down

In a great shattering of spray The whales are awake The whales are awake.





There she blows! Was cried Men swung oars to hunt the whale Harpoon. Lance. Whale dead.

Shout goes out, we run We jump in boats, oars flashing Danger. Fighting. Prey.

Shout goes out, they run We wait, hold our breath and pray. Courage. Relief. Food

I blow, breath and dive Swim away, am chased, get caught. Resist. Struggle. Die.



Helen McGlasson





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Whaling...

Helen McGlasson





The Whale

I am a whale, the king of the sea All I want is to be happy and free

I am a whale, the king of the ocean I make a commotion, I'm like a happiness potion

I am a whale, the biggest mammal alive And I do love to dive, this is when I thrive

I am a whale, I like to slap my tail In the strongest gales, or even in hale

I am a whale, a dweller of the deep Sometimes I like to keep an eye open when I sleep

I am a whale and I love to breech To see how high I reach and so I can see the beach.

Abigail Law

104







Whales

- Blue whales
- Fin whales
- Sperm whales too
 - Killer whales
- Humpback whales
- Minke whales too
 - **Big whales**
 - Small whales
- Baby whales too
- All living together in the great big blue.

Amy-Louise Thompson





Little Blue Whale

Little blue whale in the deep blue sea You swim so fast, you swim with glee Up near the surface or on the seabed It doesn't matter where, you're always ahead Little blue whale, are you happy In this watery world of yours? Little blue whale, do you like it Living life in the great outdoors? Little blue whale in the deep blue sea In a place so vast, a place so free You move with ease, you move with grace Such a beautiful creature, in such a beautiful place

Abigail Law





Where do the whale-fish blow?

Where do the whale-fish blow? Where the sky is blue and the sea so deep Where fishes swim and mermaids peep, Where turtles paddle and dolphins leap, That's where the whale-fish blow.







Helen McGlasson

Whale

With a blow on the surface He jumps through the air Always flicking his tail Landing with a splash Everyone gets soaked

Amy-Louise Thompson





Nobody Knows

Nobody knows Where the blue whale goes Deep down in his ocean kingdom

His silent flight Through the watery night A picture or oceanly freedom

The notes are long In his haunting song A chorus, an enchanting lullaby

The waves stay calm Under his musical charm As the stars listen silently from the night sky.

Abigail Law





Nobody knows Where the blue whale goes Deep down in his ocean kingdom

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The notes are long In his haunting song A chorus, an enchanting lullaby

The waves stay calm Under his musical charm As the stars listen silently from the night sky.









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Nobody Knows

Abigail Law





The ocean

There are wonders in the ocean that we still have yet to see A million little secrets waiting eagerly to be free

We've got out mighty telescopes and pointed them at the stars We've sent people to the moon and taken picture up on Mars

Yet still we do not know what lies beyond the shore

So many watery corners we still have not explored Maybe there's been monsters watching us from beneath

Or kingdoms full of mermaids hiding just beyond the reef

The sea is where we came from it's what we once called home

Yet there it sits in front of us with so many secrets still unknown She feeds us up with fishes and gives us oxygen to breath

She keeps the ecosystems alive and creates magic you wouldn't believe

So make sure you look after her, like she's watched over you

Because if one day she's not there then you'll be gone too.

Abigail Law





I wish I could Swim like a Whale

I wish I could swim like a whale.... Not gurgling and splashing or gasping and flailing, Looks like I'm crashing!

> I wish I could swim like a whale.... Sure and strong Pow'ring through water, A hundred feet long I wish I could swim like a whale!



110







I wish I could swim like a whale...

- Under the wave,
- Eyes wide open,
- Feeling brave!

Helen McGlasson





Whales – They Don't...

Whales — they don't mind gales. Whales — they don't have nails. Whales — they don't need rails Whales — they don't wear veils Whales — they don't need sails Whales — they do have tails!

Helen McGlasson

Blow!

Underneath the water, where the Blue Whale blows, Swims a cute baby turtle, with a bogey up his nose. "Blow!" his Mummy told him, "Yes, Blow!" called the whale, So the baby turtle blew, And out the bogey flew, Which made the Whale say "YEOUGH!" "That landed on my tail!"



Helen McGlasson













by Helen McGlasson

The young whale, Jewel of Wave, was sad. All the other young whales were happy! "Everyone else is up there on the surface waving their tails in the air!" she sighed, "And all those people are taking photos of them. I do love my tail, but the rest of me is lovely too. Why don't they take photos of my face?" She swam around, under the waves, thinking hard, swishing her tail and fins. A turtle quietly passing by was surprised by the sudden wash of water that pushed him off his path.

"I need a plan!" she said to herself, and went to find her friends.

Above the waves, the sun shone hotly on the people with their cameras. There were several boatloads of them, all excited to see the whales showing off their tails. They pointed and shouted to each other happily. Some of them had travelled a very long way to see the whales swim by the tiny islands in the middle of the huge ocean. "Look at those magnificent tails!" they called, as they clicked yet more photos.

Under the waves, Jewel was telling her friends how she wanted the people to take photos of all of her, and not just her tail. "There's so much of me!" she said to the starfish, who were lying on the sea bed and wishing that they could go up above the waves. "How can I get them to notice me when everyone else is slapping their tail on the sea and making them laugh?"

The starfish all thought about this. "We like it when you wave to us as you swim past" they said. "Why not just wave at them? No-one else is doing that. The people are sure to notice you and take lots of photos, especially if all of you is out of the water!"

"Good idea!" agreed Jewel. "I'll have a go straight away" and she readied herself happily.

"Here goes!" Jewel shouted, as with all

her strength, she swum up to the surface, will see it and then they will know that we breaking through the waves and leaping into blue whales are beautiful all over. Keep the air, waving her fins madly at the crowds in everything crossed for me!" the boats. "Ola!!" she called again and again. She swam off; she readied herself for

She could NOT believe her eyes: every single person was looking the opposite to make. way! An old grown up whale who was always Once again she gathered herself up and showing off had just waved his tail at them, rushed up to the surface and up above the and the crowds were clapping and taking waves on her tail. She sang her whale song his photo. and wiggled her fins. She sang louder and "Oh bother!" grumped Jewel as she wiggled her long body. She sang even louder and wiggled all of her so hard she swum below again to get her breath back. "No-one even saw me." And she swam back qot quite dizzy!

Finally she looked at the people in their

to find the starfish again. "Those people weren't even looking my boats, expecting, hoping for loud rounds of way" she grumbled. "What can I do to make applause. them look?" Oh.

Oh dear. The starfish all waved a leg or two about and thought hard. After a long while, The people were busy having cups of tea (because starfish find it hard to think very and wishing they hadn't brought chocolate much) one of them waved his leg a bit biscuits with them on a hot day. harder. "I like it when you dance for us, No-one had seen her dancing. Jewel. You are so graceful as you glide She simply could not believe it! through the water, you are big and strong Sadly she dropped herself below the and beautiful!" he blushed. water again, splashing crossly back to the "Stargazer, you are the sweetest waiting starfish.

starfish!" exclaimed Jewel." I will dance They didn't have to ask to know it hadn't especially for you, and then all those people gone well.

the big leap above the waves she needed

"We've got another plan!" called Stargazer quickly before a very cross looking Jewel had time to say anything.

"We have all been saying how much WE would like to go above the surface and see these people, and have OUR photo taken too" explained Stargazer. "So, carry us up to the surface, and juggle with us in the air! We can't really go by ourselves, and it would be much more fun with you. Please say you will, we've never been to the surface and we've never seen people, it will be amazing!"

Jewel had to admit it was a fantastic idea. "Come on then, lets go now before they all go home for the day" she decided, amidst the happy shouts of all her starfish friends.

The friends were all poised.

Jewel readied herself for being adored. Then she burst through the waves and balanced on her tail, skipping along the surface. The starfish waved their arms and legs about as she threw them up high above her head, catching them easily, and throwing them up high again.

"How's it going?" called Stargazer anxiously. (He wasn't sure he was enjoying this as much as he had thought, and he was hoping to stop soon!)

But Jewel was so cross she nearly dropped all the starfish! Not one single person was looking her way! All of them were watching some grown up whales showing off in the opposite direction.

"BAH!" she shouted. We're going home!" The startled starfish clung on tight as Jewel plunged back down. And as her tail neared the surface she whacked it down so hard she sent an enormous wave crashing towards the boats. Down she went under the waves, and sat sulking with all the starfish (who were feeling very excited about their adventure, but keeping it to themselves so as not to upset their dear friend Jewel) until her Mum and Dad came to find her.

Jewel had to explain to her parents why she had made such a big splash. "All those people have come a very long way to see us" her Dad explained.

"Yes," added her Mum, "and they want to tell everyone how important it is that people look after the whales, and protect our home and our food so we can live happily,"

"But" said Dad, "It was rude of you to splash them so much. If their cameras get spoiled with a big wave then it's hard for them to help us. We need them to take lots of photos to show everyone how beautiful Her Mum and Dad had been out singing and special we are!" to the people, until they all came with their "But that's what I was trying to do!" boats and their cameras and their cups of tea in flasks. Jewel swam up too. She Jewel told him, I'm so sorry that I made them all wet, but they just weren't looking readied herself.

She sang her song of apology. Then she at me at all!"

Mum and Dad gave her an especially big squeezy hug. "Well, tomorrow we will go awesome!" and up they went. to the surface and put on a special display Jewel whooshed up through the surface for them and explain to them that we are right out of the sea! Stargazer had asked sorry for our rudeness. We will sort it out the whole starfish community to help, so with the people, so that they get the photos they had all arranged themselves like a they need for their conservation work and starry costume all over the young whale's long body. Her special friends were ready we will be sure that they know that we are beautiful from top to toe, and side to side, to be acrobats again – they were quivering and upside down! The starfish can come with excitement! too if they like?" Jewel was singing her happy song as she

"Oh that's so exciting!" exclaimed the wiggled and waved her fins, throwing the starfish high in the air and spinning them as she spun round on her tail. She waved to the crowds as they snapped happily, Jewel grinned at them. "Can't do it balancingherfriendsalongherfins.Herstarry starfish costume twinkled and wriggled to hold on tight. She twirled and waved, juggled and wiggled, turned and twisted The next day dawned hot and hazy. until she was quite sure that the happy Jewel of the Wave was nervous, worried crowds would have the best pictures ever.

starfish all together, and they started telling each other who might go the highest or be spun around the fastest. without you!" she called, and she gave a little pirouette before swimming off with her parents.

"Balance now!" Jewel told the starfish, and excited all at once.

whispered to the starfish "Get ready to be

and all at once they balanced on one leg whilst waving the others, with Jewel holding a "TaDah!" pose to finish.

"Hold tight now," She called to the starfish as she gave her final pirouette, balancing on the very tip of her tail for a bow, and with the starfish saluting, they all slowly, carefully, gracefully, slid below the surface to finish the show.

The crowds went wild! "Jewel of Wave! Jewel of Wave!" they chanted.

Under the sea, Jewel's Mum and Dad were waiting for her and her starfish friends. "That was Whale-tastic! You did a great job!" they laughed. "You were beautiful!"

Jewel was laughing too and trying to get her breath back. "I couldn't have done it without my friends though – and my starry costume was tickling me!"

"Go give the people one last wave" suggested Mum, "they are still calling for you up there!"

Jewel and the juggling starfish swam up one more time to give the adoring crowds one last big wave.

"We love you!" she called.

"We love YOU!" shouted the crowds, "We love you Jewel of Wave!"

Later, the starfish lay about on their rocks, dreaming of flying and the world above the water, quietly glad to be safe below once more, while Jewel swam quietly with her parents, happy with her day, and her friends and with the people. She was a happy young whale once more!

THE ADVENTURES **OF DELPHINIUS**

Somewhere in the depths of the deep blue palaces and gardens, high up on the sea sea, there lay a kingdom grander and more shelf sat the wise watchful eyes of the great blue whale, Poseidon. Nothing happened magnificent than any kingdom that had ever been built on land. It was made up in his ocean kingdom without him knowing of palaces of coral in every colour of the about it. Poseidon was the biggest blue rainbow, towering high above the seabed. whale that had ever lived, his giant body a In front of the palaces lay massive gardens deep blue colour and his belly was covered of seaweed in beautiful shades of jade, in tiny white barnacles almost right up to mint and emerald. Pathways of volcanic his tail. His crown of emerald seaweed sat rock snaked between the coral palaces, above his head, woven and spiralling into the blackness a stark contrast to the bright a perfect circle, a simple but meaningful colours of the coral. Sea creatures of all item. You see Poseidon did not care for types were scattered across the pathways, gems, he did not care for precious metals, each going about their own business. Crabs he loved and cared for every sea creature and lobsters skittered between the tails of under his reign, which showed through the dolphins and manatees, sea snails took a unquestionable loyalty that shined bright in ride on the backs of friendly sea turtles, his dark blue eyes. swooping along around the slow traffic. He loved being king, as did his father,

Above all the commotion, above all the and his grandfather before him, but deep

by Abigail Law

down inside him there was a fierce need to protect those he loved. It burned within him. Little did he know that his time to protect his kingdom was to just around the corner.

One evening, as he sat on his balcony and looked out across the kingdom below him, he observed that long gone were the days of peace and happiness, the rainbow colours of the corals making up the kingdom had started to fade to grey. Rubbish from the world above littered the pathways, car tyres and plastic items sat where there were once the lush aardens of emerald seaweed and plastic bags floated above the roofs. The sea creatures who called this kingdom home had lost the bounce in their step and the alitter in their eyes.

The magic that had once thrived here beneath the waves was dangerously close to disappearing forever and no gems, precious metals or sea pearls could stop the poison that was sinking down from the world above. His sad eyes scanned across the sea bed before him and he accepted that the clear up missions he sent out weekly were a waste of time. Every time one of his loyal soldiers picked up a piece of rubbish,

another one took its place. Each time they tried to save a coral, another one died, its colours fading to match the grey of its neighbours. Something had to be done. He turned and faced his most loyal advisor, his most trusted crabby companion.

"Carcinus, what can I do? My kingdom needs me, but I don't know how to save it. I feel like I'm failing my people."

Carcinus looked up at Poseidon and saw the absolute helplessness in his kind eyes.

"Sire, some things are above and beyond our knowledge. What falls from the surface is from a force far stronger that we are able to fight. You have done everything you can for the kingdom already, the rest is left to fate."

Poseidon looked out longingly across his kingdom again, and for the first time, he felt the kingdom look back at him, its eyes staring desperately at him. Enough was enough, Poseidon decided the kingdom needed a saviour, someone brave and intelligent enough to go and find an answer to the problem, someone fast enough to pass unseen but smart enough to see what was in front of them. He wanted to go himself but he was way past his soldier days; the king was wise, but old. There was only one creature black rock entrance towards the centre of who fit into all these categories, only one the training grounds. Delphinius gave a that he could trust the fate of the kingdom powerful flick of his tail and dived towards to, the brave and mighty Delphinius, his the entrance in one quick, smooth movement. greatest soldier. "Carcinus, what a pleasure to see you my

"Carcinus, please summon Delphinius, I old friend! What brings you to the training must speak with him." grounds today? Fancy finally letting me Carcinus skittered off through the shell show you how to use those claws?"

archway and down the stairs with a sense "I'm flattered you would give me some of urgency towards the training ground. of your precious time Delphinius, but I think The training grounds were full of life, the my claws are put to better use in the castle mid-afternoon training in full flow. Teams of grounds, I don't think they'll ever be used dolphins dodged and chirped at each other, as fighting weapons! The king has asked to their tails flicking as they somersaulted speak to you; he says it's urgent. He's up on around one another. The sword-fish the royal balcony." sparred between themselves, their deep Knowing it must be serious, Delphinius voices radiating across the kingdom. In the nodded to show Carcinus he understood middle of all the commotion stood a proud, and instantly turned back to the training black fin whale, his ice blue eyes radiating grounds to find his second in command. He with fierce concentration as he shouted ordered him to continue training without orders and encouragement to the creatures him and swept towards the door. Delphinius around him. stood at the door to the king's chambers "Nice dodge Reef, make sure to and gave a strong loud knock before waiting remember to dip your tail at the end" he patiently for an answer, the guards either suggested to his newest recruit. side paid him no attention, they were clearly Delphinius turned to observe the proexpecting him. The door slowly opened to gress of the next group of recruits when reveal a very distressed looking king.

he spotted Carcinus scuttling through the "Sire, you look troubled, what is the

reason you have called me up here today?"

"Delphinius, I'm sure you have noticed the kingdom is in trouble, the life is slowly draining away, the corals are beginning to crumble and I have run out of ways to save my people. If the poison from above does not stop, I fear we may all perish! Yet I do not know how to stop it, as I do not know what it is, or where it is coming from. I feel the only option we have is to find another place to live. The kingdom needs a saviour Delphinius." The king replied. "We need you Delphinius, the kingdom needs you. I would not trust its fate in anyone else's hands other than my own."

Delphinius instantly straightened up "Sire, I would be honoured to take on such a mission. I will do everything in my power to save the kingdom."

"That I know Delphinius. You will need to leave as soon as possible, anything you need just name it and I will have it brought to you. I shall send people to help you pack your things. You need to assign others to cover your training responsibilities whilst you are away."

"Yes Sire, I shall do that immediately." Delphinius gave a short bow to the king and left the chambers back through the same shell archway, but with a new purpose.

The next morning he rose at sunrise and gathered his things. On his way to the gates he passed through the damaged kingdom grounds, looking at the sad mass of dying corals and rubbish scattered everywhere gave him a firm reminder of what he needed to do on his journey. Failure was not an option.

The kingdom depended on him. Delphinius set off to the west where he frequently watched the sun set before dark. This was also the opposite direction to where the big shadows of boats and ships came from. For some reason their shadows always brought an ominous feeling to Delphinius, he decided he wanted to get as far away from them as possible!

He travelled for a week before he started to see a change in his surroundings. It started with the water clearing in the sunlight and then the moonlight started travelling further through the water so he didn't have to stick so close to the surface in order to see his way along. There many more animals around now, a school of fish twisted and turned around him as he swam along, like a tornado of silver scales. Groups of jellyfish bobbed as he reached the edge of the sea bed. He around close to the surface, joined by sea peered over the edge of the drop and down turtles and sea birds, this was unheard of into the inky, icy cold blackness below where anymore at the kingdom. Everyone huddled he could just make out the remains of one of together behind the gates, hoping for the biggest ship wrecks he had ever seen. safety in numbers, a wave of sadness swept It was like the sun itself feared to touch this over Delphinius as he remembered how the area of the ocean, its beams making a pitiful kingdom used to be. attempt at reaching down to the seabed Delphinius had never been one to jump below.

Delphinius looked around for an alternto conclusions, but the poison seemed to be coming from the direction of the ative route, but the crevasse stretched out as far as he could see in both directions. shore, and everyone knew that the shore meant humans. He was almost positive that He could just make out the other side in the the reason the corals were dying and the distance, or what he thought was the other amount of pollution left behind was coming side at least. Something about this place made him feel uneasy and his tail began to tingle, but he couldn't quite put his fin on what it was. He had come this far now he told himself, he

from something the humans were putting into the sea. If this was the case, the further away they got from the humans, the less pollution there would be. Delphinius had been so deep in thought couldn't turn back. Before he could change that he had failed to notice that suddenly his mind, Delphinius swam out over the the life he had seen just minutes before had edge of the crevasse with his eyes firmly started to disappear, and an eerie quietness focused on the ridge at the other side. But had settled around him. The only thing as soon as he crossed the edge, the density that broke him out of his daydream was of the water changed and he started to drop the sudden drop in the water temperature down, down, down into the black abyss as he neared the edge of the underwater below him. crevasse before him. Delphinius stopped Survival instincts instantly set in and

Delphinius desperately tried to swim back up to be level with the ridge again, but after travelling every day for the past week, he just didn't have the strength left in him anymore. Eventually he gave up fighting and instead turned his sharp eyes to his surroundings to lookout for any danger.

Suddenly, he saw movement. Something was watching his descent from the shipwreck at the bottom and he wasn't entirely sure whether he wanted to find out what it was. Delphinius was now fully on his guard and he could feel unfriendly eyes watching him as he descended deeper into the crevasse, adrenaline started to pump around his body...

Then, without warning, it looked like the ship wreck came to life before Delphinius's eyes and it took him a few seconds to realise that an army of sharks who had been cunningly camouflaged had all at once moved out of their hiding places and were all heading in his direction with hungry eyes. Delphinius frantically searched for an escape route, all the years of military training in the kingdom's army setting in. His heart sank when he realised the movement he had spotted earlier to his left was a group of sharks that had separated from the rest of the group to flank him. He had fallen victim to an extremely well planned trap and he despaired over how he could have let his guard down so easily. But Delphinius wasn't just any whale, he was the commander of the king's army and he had the fate of the kingdom in his hands. He wasn't about to give up that easily, especially not to a group of hungry sharks.

Delphinius looked to his right and as he anticipated, there was another group of sharks rising up to flank him there too. He quickly assessed their positions and realised judging by their placement and the directions they were coming from, that they were anticipating that he would panic and try to swim upwards in an attempt to escape.

All they had to do then was let the water density do the work of stopping him, whilst they closed in. He looked down and realised they hadn't planned for a downward escape as the route below was clear. There's clearly a first for everything. In one quick powerful motion, Delphinius dived straight down the rock face using the downward motion of the cold water to his advantage, helping him gain speed and power. The sharks hesitated in surprise for a few seconds giving Delphiniusface behind him completely disappeared ina precious head start before throwingone quick snap motion and he was left lyingthemselves into pursuit.alone in a pitch black tunnel.

Delphinius tucked his fins in tightly It was the silence that hit him first. He against his body to gain as much speed as wasn't usually a fan of small places, but right possible and aimed his nose directly down at now, he didn't want to be anywhere else. the sea bed. He was quick, but wasn't quite He lay there for a short while, closed his quick enough. Right behind him he felt the eves and waited for his breathing to slow snap of jaws millimetres away from his tail back down again before he pulled himself and seconds later a huge great white shark together and had a look at his surroundings. ploughed into the side of him, knocking the To say the tunnel was roomy would breath out of his body and slamming him have been an exaggeration, but it was big against the rock wall. enough for a full grown Delphinius whale

Delphinius dodged just in time as the to snugly swim through, so to most other shark's jaws snapped shut where his head sea creatures, the tunnel would be seen as had been merely seconds before. He met quite large! Its roof and sides were made its cold eyes and saw the hunger and anger of carved, smooth rock, which looked to within them. He scrambled with his fins Delphinius like it hadn't been made naturally. against the cliff desperately trying to find With a hungry, and now probably very some sort of loose rock that he could use angry great white shark on the other side of the rock behind him, Delphinius decided as a weapon.

His fin fell upon something sticking out
from the rock that felt loose and he pulled
as hard as he could. But instead of it leaving
the rock face like he expected, it slid and
stayed attached. One minute Delphinius
was face to face with a very hungry, great
white shark, and the next minute the rockthe best and only option would be to follow
this mysterious tunnel and find out where it
lead.
He followed the tunnel for a few hours,
it twisted and turned and proved quite a
challenge sometimes when it became narrow
in places. He fought through a particularly

With a hungry, and now probably very
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of the rock behind him, Delphinius decided
the best and only option would be to follow
this mysterious tunnel and find out where it
lead.

tight squeeze and when he popped out of the other side, he noticed to his relief that the water was significantly warmer, and this could only mean he was finally getting close to the other end.

Finally, he turned round one last corner and blindingly bright sunlight poured in through the tunnel opening ahead. He had been in the dark for guite a long time so it took his eyes guite a while to adjust, and when they did, what he saw shocked him that much, that for a moment he forgot how to breathe.

Delphinius was hovering on the edge of a coral rock that ran like a protective barrier for miles in each direction in a huge circle around a massive underwater valley. The rock was monstrously high and was dotted everywhere with mystery tunnel openings similar to the one he had just come from.

Delphinius stood with his mouth open in absolute awe at his surroundings for a while, unable to take in the absolute beauty of what he was seeing. It was like an underwater jungle, he never even knew that such a vast amount of seaweed species and underwater plants existed. The water was so clear the sun beams danced through it with ease. In the

seaweed jungle below, tiny multi-coloured fish darted around each other like tiny little rainbows, their vibrant colours blending in among the colourful seaweed, the most beautiful form of camouflage Delphinius had ever seen. At the top of the walls, manta rays glided between one another, like the birds of the ocean, their majestic movements were hypnotic. Delphinius struggled to take his eyes off them, finding himself completely falling under their spell. He had found paradise.

For the first time in a long time he felt safe, like this place had been waiting for him to find it all this time. A group of seahorses rode over to Delphinius, curiosity in their eyes as they explored this strange creature who had wandered into their secret lands. Delphinius stayed still, making gentle slow movements as they circled his body to allow them to read his intentions.

When they seemed satisfied, they glided back round to face him and their eyes met. In a swift movement, they turned and started moving the valley, beckoning him to follow. Delphinius did so and soon realised when they came to another one of the tunnels similar to the one he had come out of that they were helping him find his way home. He felt the unquestionable pull of the kingdom through the tunnel and the weight of the promise he had made to his people.

He turned to the seahorses and smiled a silent thank you, in return, they nodded in response before scattering back out among the seaweed jungle below. Delphinius took one last look back at the untouched ocean utopia he had found, locking the memory into his mind before turning to face the tunnel before him. Delphinius had found a new home.

AJAX AND MIGUEL

by Megan Pollard

Ajax hated man. He didn't understand them. They came in their long boats, with weird flippers and sharp teeth to attack him. They didn't eat him and they weren't defending themselves, so why attack? What was the point?

Miguel looked out to sea, and felt the strong breeze on his skin. He was itching to go back out onto the water to find the next whale. His father had died two years ago and the responsibility of keeping his family afloat had fallen onto his young shoulders. Farming was in his blood but it barely provided enough money to put food on the table. His mother went without most nights to let the youngest eat. His little sister had worn through her last pair of shoes so had to go to school barefoot. He was watching his brother being bullied for having holes in his clothes. Miguel knew the ocean could provide but finding a well paying job that

would take a 14 year old boy on had been hard. Until he found Jao. Or rather Jao found him. Jao was the captain of a whaling boat and needed an extra pair of hands out at sea as one of his men had never made it back from the last trip. Hearing of the family's problems, he took pity on Miguel and offered to train him up.

"You need to learn fast though, I don't tolerate stupid or lazy men on my boat."

Miguel promised to do the captain proud.

Ajax surfaced warily. The waters around him were well known for the whale hunting man. However, these waters also had the tastiest squid in the entire ocean. Ajax's ancestors had been hunting in these waters before man and he was not about to run away from his ancestral pool just because some strange beast threatened him. He let out one last puff of air before he readied himself for a dive.

The bells sounded in town. A whale had been spotted. Miguel ran off to meet with "What you waiting for boy? Throw the Jao and his crew. His past few outings had spear! He is right there!" Came the roar proved his worth and Jao, impressed with from Jao. the young man's abilities and guick thinking, Miguel gathered his nerves and threw had given him the chance to spear the next the spear in a perfect arc towards the charging whale. The rope spun out behind whale. The tow boat took out the long boats to it, flying through the air.

where the vigia had last seen a blow. Next came the waiting. Miguel anxiously waited Ajax felt pain. It exploded from where the with his spear knowing the next few hours pointed tooth had hit him. But it was just were vital to helping his boat get the whale in his fluke. Fuelled by the pain and rage - and getting his family some money. of being attacked, Ajax aimed for the boat, "30 meters to the right" came the shout drawing nearer and nearer.

behind Miguel, and the boat was off after Miguel's sweaty palm.

the whale, the spear slipping slightly in Miguel looked in horror as the spear missed the whale's body and hit his tail. A poor shot and one that just seemed to enrage Ajax heard the war cry of the men and felt the beast. Miguel saw one last blow before the movement of their boat. His massive the whale lowered its head into the water heart beating rapidly as he realised how and then the world shook as all 50 tonnes quickly the men were gaining on him. He of pure might struck the tiny wooden boat, couldn't dive again for long as he hadn't flinging Miguel and the rest of the crew had chance to catch his breath from his last overboard. one. Panicking, he turned to face them and Miguel felt something smooth fly by him and as he turned he found himself aimed for the boat. alongside the mammoth creature, realising

Miquel saw the whale turn and race at them. Were whales supposed to attack?

how pathetic their boat had been against such an animal. The whale looked him in the eye and Miguel found himself staring into an eye full of intelligence and confusion. The whale snapped at the crew members and disappeared into the darkness, dragging the rope behind it.

Satisfied that he had stopped the men from hunting him, Ajax went as far as he could. However, the weird tooth thing the man had thrown was attached to something that he could just not shake. The main thing he could not shake though was the man's eves. He had gone towards the one that had thrown the toothed stick at him with rage in his heart but had found eyes that were young but sad. Confused by this he made rash snatches at the other men before darting clear of them.

Miguel bobbed along with the tide of the ocean, clinging to part of the broken boat. All the men had survived the destruction of the boat and had to wait for the tow boat to come and collect them. Miguel looked at Jao and saw a man as broken as the boat. This was Jao's only boat and without one, he

could not chase the whales. Miguel realised that his miss had not only destroyed the boat but Jao's livelihood and the chance for him to make some money. However, part of him was glad. When he looked into the whale's eye, he had not seen a beast for him to kill but a soul. A soul with the ability to think and love.

Ajax was really in pain now. The toothed stick and rope had attached to some rocks and he was unable to move very far before he had reached the end of its give. Ajax knew if he was still here by the morning there would be no escaping this time.

It was nightfall by the time Miguel and the rest of the men made it back to the shore. All the other boats boasted of their catches and pitied Jao. Miguel couldn't face his family and having to tell them that he had been responsible for not only bringing no money that day but ruining his chances, and therefore theirs, of ever bringing enough money in to the household.

Miguel went for a walk along the cliff face. Staring out to sea, he thought about the eyes that had haunted him when he saw an unusual wave. Looking closer, he could like murder. Sighing, Miguel jumped into see that it was a blow from a whale. Running the water with his knife in hand to cut the down the cliff path he could see that the creature lose. whale was not moving away from the edge of the island. Confused, he studied closer Confused, Ajax wriggled and felt a small and watched as the whale lifted its fluke. bump on his lower back. Suddenly he was Then he saw the problem. It was his whale. free from the toothed stick and able to swim The one he had missed. He had hit the poor away without pain. He shot forward knocking beast in the fluke and the rope had now a creature out of the way. He turned to see caught around the rock. Easy pickings and what it was and realised it was the man from surely would mean enough money to buy the boat. The one whose eyes of sadness he his sister the shoes she so dearly needed. had looked into. But in his haste to escape from the side of the island, he had bumped Ajax heard the man running down the side the man and now he seemed lifeless. Just of the cliff. He didn't know what to do. He floating in the water. Ajax could not leave a was tied to these rocks and couldn't escape debt unpaid. The man may have hurt him but and now this man would surely finish the he had destroyed the man's boat and now

job the others had started. Panicking, he the man had saved Ajax's life. readied himself for a dive that would not Ajax gentle nudged the man's body up be possible, putting his fluke in the air and to the surface of the water. Seeing a cove trying to escape. All of a sudden, Ajax felt a nearby, he swam to the shallows and let the tug on the toothed stick. tide pull the man ashore.

Miquel couldn't do it. He couldn't raise Miguel coughed and water left his lungs. the alarm. The soul that he had seen in He looked around and found he was in a the eyes of the whale would hound him small cove not too far from his house. His head hurt and his arm was bruised. Miguel forever if he called Jao and the team now remembered jumping in the water and to this defenceless whale. It felt too much

cutting the spear from the whale and then the whale bumping him.

Suddenly a blow appeared in front of him and then a fluke lifted into the air. Miguel realised that the whale had saved him from the ocean, just as he had saved the whale from man. Miguel raised his arm as the whale darted away.

Ajax returned to the island a few years later, remembering the delicious squid but also the man with the sad eyes. Word around the ocean was that man no longer attacked the whales anymore and Ajax wanted to eat there again.

He heard man and a felt their boats. Not again! But there was something different this time. They did not have the same nervous edge or quietness about them. Ajax lifted his head above the water and saw a boat with many people in very bright clothing looking at him. They seemed to have strange devices that glinted at him. Then he saw the sad eyes. Yet now they weren't sad. They were happy and carefree.

•

Miguel was leading out his tour boat showing them the whales. They had a call

from the vigia to say there were sperm whales nearby. Miguel spotted the head of a male and then the fluke went up. This fluke was special; it had a spear-sized hole in it. Miguel pointed it out to his passengers and told them;

"This is Ajax. The one who showed me that every creature has a soul".



READING QUESTIONS

Jewel

- 1. What species of whale was Jewel?
- 2. What animal were Jewel's friends?
- 3. What part of her body did Jewel not want to show?
- 4. Why did her parents want to be friends with the people?
- 5. What was the weather like in the story?
- 6. Is the word wiggled a verb or an adjective?
- 7. What does the word pirouette mean?
- 8. Is awesome an adjective or adverb?
- 9. What was the name of starfish who loved Jewel?
- 10. Why do you think the people wanted to take the whale's photograph?

The Little Barnacle

- 1. Which animal does the barnacle finally live on?
- 2. Which animal dives very deep in the story?
- 3. Which animal helps the barnacle find his new home?
- 4. Where did the barnacle live on the whale?
- 5. Is diving a noun or a verb?
- 6. Can you think of a simile that describes a whale?
- 7. Why couldn't the barnacle live with the jellyfish?
- 8. What does the whale eat?
- 9. Is beautiful an adjective or adverb?
- 10. Complete this sentence: A splashing and surfing and

The Adventures of Delphinius

- 1. How many animals are mentioned in the first paragraph?
- 2. Can you name them?
- 3. What is the name of the King's advisor?
- 4. What does the word sire mean?
- 5. Which ancient civilisation are the names Delphinius, Poseidon and Carcinus from?
- 6. Give three words you would use to describe a shipwreck?
- 7. Can you think of a name for Delphinius' new home?
- 8. Is blindingly an adjective or adverb?
- 9. What animals help Delphinius find his way home?
- 10. What colour are the fish if they can camouflage with seaweed?

Ajax and Miguel

- 1. How many narrators are there in the story?
- 2. What was the name of the captain?
- 3. How far away were the boats to Ajax when they saw him?
- 4. What does the word fluke mean?
- 5. What does the word mammoth mean?
- 6. Is the word destruction a noun or verb?
- 7. What were the strange devices that glinted at Ajax in the end?
- 8. What was Miguel's last job?
- 9. How did he know it was Ajax?
- 10. Why did the whales come so close to the land?

READING ANSWERS

READING ANSWERS

Jewel

- Blue whale
 Starfish
 Her tail
 So they would help protect the whales and their environment
 Very hot/hazy
- 5. very not/naz
- 6. Verb
- 7. Turn or spin around
- 8. Adjective

The Little Barnacle

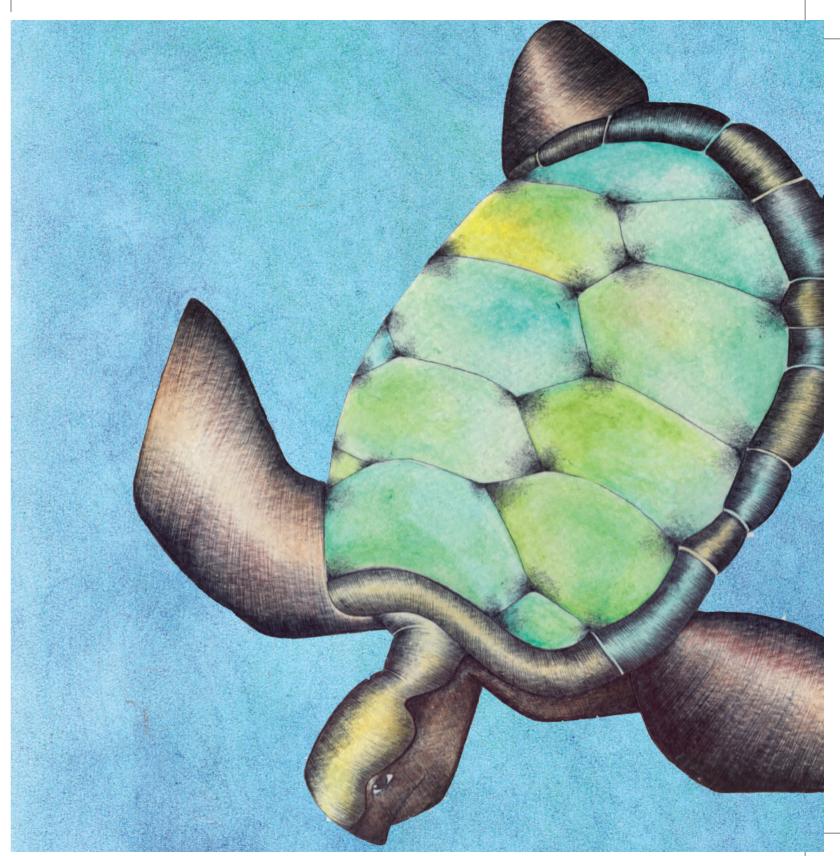
- 1. Turtle
- 2. Whale
- 3. Flying Fish
- 4. In his teeth
- 5. Verb
- 6. Using as or like
- 7. They would sting him
- 8. Squid
- 9. Adjective
- 10. A splashing and whooping and surfing and laughing

The Adventures of Delphinius

- 1.6
- 2. Crabs, lobsters, dolphins, manatees, sea snails, sea turtles
- 3. Carcinus
- 4. Your Majesty, or Your Highness
- 5. Ancient Greece
- 6. Murky, haunted, dangerous, scary etc.
- 7. Any words alluding to paradise
- 8. Adverb
- 9. Sea Horses
- 10. Green

Ajax and Miguel

1. 2
 2. Jao
 3. 30 metres
 4. Tail
 5. Big
 6. Noun
 7. Cameras
 8. Whale watching guide/tour guide
 9. He had the hole in his tail
 10. To hunt the squid





Blue Whale

- 1. How fast can blue whales swim?
- 2. What shape is their head?
- 3. Name the 4 stages of digestion.
- 4. How long are blue whales pregnant for?
- 5. How many different types of blue whale are there?

Fin whale

- 1. Which fin whale is larger, Northern Hemisphere or Southern Hemisphere?
- 2. How long is a fin whale when it is born?
- 3. What are the four things that a fin whale eats?
- 4. How many different fin whales are there?
- 5. How far down can fin whales dive?

Sperm Whale

- 1. Why are they called sperm whales?
- 2. How do they see underwater?
- 3. Which jaw are the sperm whale teeth on? Lower or Upper?
- 4. At what age do they reach sexual maturity?
- 5. What side of their head is their blow hole?

Common dolphin

- 1. What colours are common dolphins?
- 2. Why are their neck bones so close together?
- 3. How many pairs of teeth do common dolphins have?
- 4. How are dolphins born?
- 5. How long do their calves feed on their mother's milk?

The Azores

- 1. What country does the Azores belong to?
- 2. What ocean are the Azores in?
- 3. What is the capital city of the Azores?
- 4. What century were the Azores discovered in?
- 5. What is the main religion in the Azores?

Whaling and Tourism

- 1. Which whales were hunted in the Azores?
- 2. What was the most important part of the whale used called?
- 3. Name two rules that the whalers had to follow?
- 4. When was whaling banned in the Azores?
- 5. What is the purpose of whale watching trips?

QUIZ ANSWERS

Blue Whale

1. 48 km/hour (30 miles per hour) 2. 'U'

- 3. Fore stomach, Main Stomach, Connecting Channel, Pyloric Stomach
 4. 10–11 months
- 5. 4; Balaenoptera Musculus (Northern blue whales), Balaenoptera Musculus Intermedia (Antarctic or Southern blue whales), Balaenoptera Musculus Indica (Indian ocean blue whales), Balaenoptera Musculus Brevicauda (Pygmy blue whale)

Fin whale

1. Southern Hemisphere by 10 feet (3.1 meters)

- 10 leet (3.1 meter
- 2.6.5 meters
- 3. Sand Lance, Herring, Capelin, Krill
- 4. 2; Northern Hemisphere and Southern Hemisphere
- 5.100 meters

Sperm whale

- 1. Named after the oil spermaceti found in their heads
- 2. Echolocation
- 3. Lower
- 4.7–13 years old
- 5. Left

Common dolphin

- 1. Black, White, Grey and Yellow
- 2. To help with pressure when they dive
- 3. 41-54 pairs top and bottom
- 4. Tail first
- 5.10 months

The Azores

- 1. Portugal
- 2. The Atlantic
- 3. Ponte Del Garda
- 4. 14th Century
- 5. Christianity/ Catholicism

Whaling and Tourism

- 1. Sperm whales
- 2. Amber
- 3. Not smaller than 10m, not pregnant, once it was injured they had to kill it
- 4.1986
- 5. To educate people about whales, to protect them in the future, to stop people whaling, to generate money for whale protection charities

QUIZ ANSWERS



Acid: a substance with a PH balance of less than 7 Alkaline: a substance with a PH balance more than 7 **Archipelago:** an extensive group of islands Apex Predator: the top of its food chain Baleen: whale bone, which makes up their teeth (found in Minke, Blue, Humpback, Fin, Sei, Right and Grey whales) **Biceps:** muscle found in the upper arms of humans **Calories:** energy made from food Carbon Dioxide: a colourless, odourless gas produced by burning carbon and organic compounds and by respiration **Carnivore:** an animal that feeds on other animals Capelin: small North Atlantic fish Cetacean: a marine mammal of the order Cetacean; a whale, dolphin, or porpoise **Climate:** the weather conditions prevailing in an area in general or over a long period. Colonised: send settlers to (a place) and establish political control over it Conservation: the action of conserving something, in particular Crustaceans: sea creatures that have a shell i.e.. Lobster, Crab **Decibels:** the unit of measurement for sound Demersal Ray: a flat fish found near the bottom of the sea bed **Dorsal Fin:** the large fin on the back of Whales, Dolphin and sharks Echolocation: the location of objects via reflected sound Environment: the surroundings or conditions in which a person, animal, or plant lives **Erupting:** a volcano becomes active and ejects lava, ash, and gases European Union: political-economic union of 28 member states

Fertile: producing or capable of producing abundant vegetation or crops Fluke: the tail of a whale or dolphin Geothermal Energy: thermal energy generated and stored in the Earth. Thermal energy is the energy that determines the temperature of matter **Global Warming:** a gradual increase in the overall temperature of the earth's atmosphere Habitat: the natural home or environment of an animal, plant, or other organism **Harpoon:** a barbed spear-like missile attached to a long rope and thrown by hand or fired from a gun Hemisphere: a half of the earth, usually as divided into northern and southern halves by the equator Herbivore: an animal that feeds on plants Herring: a small, silver fish found across the world **Ice Caps:** a covering of ice over a large area, especially on the polar region of a planet **Intestine:** part of the digestive system of all mammals Killer Whales: a type of dolphin Krill: a small shrimp like crustacean Lance: a long weapon with a wooden shaft and a pointed steel head Mammal: a warm-blooded vertebrate animal of a class that is distinguished by the possession of hair or fur, females that secrete milk for the nourishment of the young Marine Life: plants, animals and other organisms that live in the ocean Melon: part of the head of a dolphin which helps with echolocation Migration: seasonal movement of animals from one region to another. **Myoglobin:** a type of blood cell that oxygenates the muscles and organs

GLOSSARY CONT.

Nautical Miles: miles at sea – 1,852 metres

Oil Spill: An oil spill is the release of a liquid petroleum hydrocarbon into the environment, especially marine areas, due to human activity, and is a form of pollution Pancreas: an organ inside of mammals which helps digest food Plankton: the small and microscopic organisms drifting or floating in the sea or fresh water **Pollution:** the presence in or introduction into the environment of a substance which has harmful or poisonous effects

Predator: an animal that naturally preys on others

Prey: an animal that is hunted and killed by another for food.

Plankton: small and microscopic fish, plants and organisms that many sea animals feed on

Pyloric: part of the stomach

Rectum: The opening where waste leaves the body

Region: an area, especially part of a country or the world having definable

characteristics but not always fixed boundaries.

Reproduction: the production of offspring by a sexual or asexual process **Richter Scale:** a numerical scale for expressing the magnitude of an earthquake Saline: water containing salt

Sand lance: a type of sand eel

Settlers: a person who settles in an area, typically one with no or few previous inhabitants

Sexual Maturity: when a male and female are old enough to reproduce a large fish

Sonar: a sound that is emitted which can be recorded when reflected back off an object

Species: a group of living organisms consisting of similar individuals capable of exchanging genes or interbreeding

Spermaceti: a white waxy substance produced by the sperm whale, formerly used in candles and ointments

to the environment and to human health if inhaled, swallowed, or absorbed through

Squid: a long, fast sea creature with eight arms and two tentacles The Triple Junction: the point where the boundaries of three tectonic plates meet **Toxic Chemicals:** A toxic substance means any chemical or mixture that may be harmful

the skin

Tourism: the commercial organization and operation of holidays and visits to places of interest

Triceps: a muscle found in the upper arm of a human

Tropical: Hot and humid climate

Vijia: a lookout tower

Volcano: a mountain or hill, typically conical, having a crater or vent through which lava, rock fragments, hot vapour, and gas are or have been erupted from the earth's crust

Volkswagen: a German car manufacture Whaling: the practice or industry of hunting and killing whales for their oil, meat, or whalebone

OSSARY



Amy-Louise Thompson: often known as 'bad cop' has a bark worse than her bite. An English Language and Sociolinguistics graduate from Lancaster University, Amy-Louise set her sights on the world and took off to China for some soul searching. Now a UClan Publishing graduate she is moving into marketing and events, with hopes of taking the world by a very loud and very organised storm.

Megan Pollard: is a project manager for UCLan Publishing. Megan completed a degree in Ancient History and Archaeology at Liverpool University in 2011, for which she found no use for whatsoever and got the call to publishing from a popular Rom Com (many thanks to Sandra Bullock!). After spending several years giving questionable guided tours in southern France, she returned to Preston, finding herself at the heart of UCLan Publishing and producing this book. She has now set her sights on the top ranks of the publishing world.

Riley Arthur: is currently pursuing (with vigour) a Master's degree in Visual Journalism. Her primary work focus is on ethnographic visual storytelling, which basically means bumming around the world on trains taking the most beautiful photographs! So much so that this year she conducted the first Instagram residencies ever to be attempted on a rail network, with NorthernRail in the North West of England, Elron in Estonia and LitRail in Lithuania.

Jade Fricker: is a recently graduated textile student, with a aptitude for turning the ugliest duckling into a beautiful swan, and transforming the most mundane story with her colourful accent. She is currently a teddy bear designer for a local toy company and enjoys watching her designs become fluffy companions. She recently gained her first commission at the Young Designers Exhibition in London.

Abigail Law: is an outdoorsy type spending her free time taking children into the wilderness for fun and games (they come back...most of the time). She is currently preparing for a once in a lifetime trip to the Himalayas to spend a year working with children in India. Abigial is a creative soul inspired by the world around her, and can be identified by her mane of curls flying along in a canoe.

Helen McGlasson: was born a very long time ago and is still not dead. She is always writing, drawing or sewing something new. She has a lot of fun studying Textile Design and wishes there was more time to sew dolls or books or colourful dresses with swishy net skirts. Helen loves walking on the beach and hugging large dogs, but never wins at Snakes and Ladders. Please do not believe any stories you may have read in the newspapers; she is NOT the relation of a crustacean.

Laura Shepherd: a mad as a hatter photography student at the University of Central Lancashire has a passion in photographing sport and fast movement. She currently works for Medialmage, photographing national football leagues (spot her on the sidelines at the match). Laura has had her work published in national weekend news papers, and has an art for finding a nickname for everyone she meets, though sadly it is always the same one.

Debbie Williams: lecturer, publishing whiz, activist and all round guru has had a varied career spanning (well we won't tell you that). Having worked at Waterstones as a children's buyer, and been to every party in town, Debbie followed her northern roots back to Preston and set up UCLan Publishing. She enjoys getting lost in the lake district with husband Stuart and dog Django, and being first port of call, in quite frankly every storm for her students.

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Megan and Amy-Louise



