



A GREEN
NOTE
A MESSAGE TO CHILDREN FOR
PRESERVING BIODIVERSITY ON
EARTH BY
RAZAN KHALIFA AL MUBARAK



ENDANGERED

Life in the WATER

— STRUGGLING TO SURVIVE —



هيئة البيئة - أبوظبي
Environment Agency - ABU DHABI

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— **STRUGGLING TO SURVIVE**

Life in the **WATER**

Dear Students,

I am sure, by now, you are familiar with the definition of biodiversity - it is all about the variety of life that exists on this Earth. But did you know that scientists estimate that around 5 to 100 million species of organisms call it home? From these, we have only identified 2 million species so far!

The United Arab Emirates is located in a hot arid desert - one of the most fragile ecosystems in the world. Here, the plants and animals are heroes. They are trying to survive against all odds. However, despite the harshest of conditions, the country still manages to support an impressive 800 species of plants, 64 species of terrestrial and marine mammals, 67 species of reptiles and 430 varieties of bird species.



However, as tough as these species are, they still face severe threats. Species extinction around the world is on the rise – 1 out of every 8 birds, 1 out of 4 mammals, 1 out of 3 amphibians, and 75 per cent of the world's fish are under threat. With 31 per cent of the world's forests gone, there is a scarcity of resources provided by forests, such as food and medicine. This also means that animals are losing a safe habitat.

Biodiversity is closely linked to what we breathe, eat, drink and even wear. It is so important to our existence that in fact that we cannot afford to sit around and watch as these species and habitats are being lost. They are vanishing because of many reasons such as pollution, contamination, introduction of alien species and climate change. WE humans played and continue to play a large part in the reasons behind these problems and so WE need to come up with the solution, without further delay.

Protecting our natural heritage and conserving biodiversity is one of our priorities at the Environment Agency - Abu Dhabi. We strongly believe in raising environmental awareness and promoting environmental education. We have already reached out to hundreds of thousands of students, just like you, through our educational programmes. However, this series, developed jointly with TERI – The Energy and Resources Institute, will help us reach even more students to raise their awareness about species around the world, including in the UAE, whose lives are in danger.

I hope that you enjoy reading this series and it helps you to better understand what plants and animals are facing on Earth. Help spread the message far and wide, so that others can also start protecting and conserving our precious biodiversity.

Razan Khalifa Al Mubarak
Secretary General
Environment Agency - Abu Dhabi

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Introduction

Aquatic animals and their characteristics: We live in or near water and are known as aquatic animals. We are of two kinds – vertebrates and invertebrates. Vertebrates include fish along with seabirds, marine reptiles, such as sea turtle and sea snakes, and marine mammals, such as whales and dolphins. More than half of us vertebrates are fish, most of whom breathe using gills, have a body covered with scales, are cold-blooded, live in fresh water or in the sea (some can survive in both) and move using fins. We invertebrates are aquatic animals that have neither a backbone nor a bony internal skeleton. Called Cnidarians, our invertebrate group possesses tentacles that bear stinging cells (cnidae), and it comprises jellyfish, sea anemones, and corals. Some cnidarians can swim, while others are attached to the sea bed.

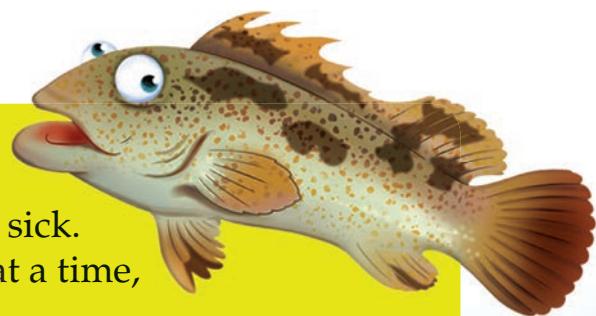
Why we are important: We aquatic animals are useful in medical research, supplying compounds that treat inflammations, asthma, heart disease, tumours, infections, and pain. For example, cod liver oil, derived from the liver of cod fish, is highly recommended as a nutritional supplement for all adults and children. It has high levels of omega-3 fatty acids and is a rich source of vitamin A and vitamin D, which prevents rickets and vitamin D deficiency. The seafood industry thrives on us as it provides jobs for commercial fishers, wholesalers, and retailers. Similarly, we have helped in expanding coastal eco-tourism.

Threats to our community: We dread the overuse of pesticides. Pesticides kill thousands of us – fishes, as well as frogs, turtles, mussels, water birds, and other wildlife. We are also concerned about the ever growing water pollution levels that suffocate us – oil spills from ships, wastes from factories and nuclear plants, and so on. Global warming has caused the surface water to become acidic, which has led to changes in our natural habitats and food supply. Above all, overfishing has led to a decline in our numbers.

Aquatic animals in the United Arab Emirates (UAE): The UAE has a diverse marine life. It includes fish, such as Pelagic, Demersal , Intertidal, Shallows, Khor Kalba. UAE is a home to one-third of the 80 known species of whales and dolphins, or cetaceans as they are collectively called. The rich and extensive seagrass beds of UAE is a favourite habitat for the dugongs, a species which gave rise to the myth of the mermaid, which is now threatened with extinction. Out of seven recognized species of marine turtles in the world, only 2 live in the UAE – the green turtle and the hawksbill turtle – to nest and forage, while others just accidentally pass. Seven species of sea snakes, such as Arabian Gulf sea snake, yellow sea snake, Shaw's sea snake, and yellow-bellied sea snake live in UAE.

Did you know?

- Sharks are the only animals that never get sick.
- Dolphins sleep with one half of the brain at a time, and one eye closed.
- The Galapagos tortoise has a potential life span of 200 years.
- Killer whales (orcas) kill sharks by destroying the shark's stomach from underneath, causing the shark to explode.
- The whale shark has over 4,000 teeth. Each tooth is only 3mm long.
- Dugongs sleep under water, drowsily surfacing for air every few minutes.



Dugong dugon

Learn to identify me

I am the only entirely marine mammal to feed exclusively on plants. We are large, rotund animals and we have short, paddle-like front flippers and a fluke-like tail. Our thick skin is a brownish-grey colour and there are short, coarse hairs sparsely distributed over our body and bristles on our muzzle.

We grow tusks, but they break the skin and are therefore visible in mature males.

Blast from the past

For centuries, the dugong has been deemed an animal endowed with miraculous powers in China, and therefore killing it there is considered to be a reason for disgrace.

Relation with elephants and cows

We are more closely related to elephants than to marine mammals. And we are also called "sea cows", because we feed almost exclusively on seagrass.

Length: 2.4–4 m; weight: 231–500 kg; life: 70 years

Bio



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Dugongs sometimes breathe by "standing" on their tail with their heads above water.

Did you know?



The dugong is the only strictly marine herbivorous mammal and almost always found only in shallow waters.

Habitat

I just told you that we survive on seagrass. Needless to mention, we find our feeding grounds in shallow water over seagrass beds. We can stay underwater for six minutes before surfacing.

Decreasing populations

Our populations have reduced greatly at present across the world. You will find most of us in Australia. The rich seagrass beds in the waters of the UAE serve as a wonderful habitat for us; our population in the Arabian Gulf is estimated to be around 5,000.



Dugongs are sometimes killed for their teeth and tusks, which are used to make ivory artefacts.

Mother-child relationship

The female dugongs give birth to one offspring after a pregnancy of one year or so. Our mothers help us reach the surface immediately after birth, so that we can take our first breath. We stay close to our mothers for about 18 months. Sometimes, we even catch a ride on their broad back.

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Threats

Humans have been killing us for several reasons. We have been persecuted for meat, skin, and oil. Our large size, slow movement, and dependence on coastal habitats make us vulnerable. Also, our low reproductive rate, long pregnancy time, and high investment in each offspring means our populations take a long time to recover from any losses. If we get entangled in fishing nets, we die of suffocation as we can hold our breaths for not more than 10 minutes and need to surface over water. So we easily drown once entangled.

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Blue whale

My body and me

I have a thin layer of skin and, under it, a thick layer of blubber. My body is shaped like a torpedo. This shape helps me dive and catch prey. I have two short flippers made of bone in the front part of my body. I have a wide tail called fluke and holes on top of my head called blowholes.

I whistle, though slowly, to talk to my mates. Sometimes, I even sing. My haunting call is loud and travels far across the ocean.

Bio

Weight: 64,348 kg; Length: 21–25 m; Lifespan: 35–40 years



The elephant weighs as much as my tongue! Even the biggest dinosaur that ever lived was only about one-fourth of my size. I am the blue whale.

Blast from the past

The blue whale was earlier called "sulphur-bottom whale" because the algae that sticks to the lower part of its body makes it look yellow, just like sulphur.

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I eat...

I can dive as deep as 503 m, and can lie submerged in water for more than two hours. I collect a lot of food and water in my mouth and then strain out the water through baleen. I have baleen in place of teeth, which comprises coarse bristles. The warmer the sea, the lesser the food. Colder water contains more oxygen and carbon dioxide, which makes it rich in plankton. So, during winter, I move towards the Polar regions where huge quantities of plankton are easily available.



Blue whales eat krill, which are shrimp-like boneless sea creatures, and plankton.



Whale fat is used to make lipsticks and candles!

Willing to live but...

I am being hunted since ancient times. Stone Age humans used to hunt me down for food. Whale hunters, or whalers, used weapons called harpoons to hunt us for blubber. It was used to make leather, soaps, cosmetics, and several other products. Noise and environmental pollution is also killing me.

Did you know?

Female blue whales, the largest whales, also bear the biggest babies. A newborn blue whale calf is seven metres long and weighs 2,268 kg – as much as a full-grown elephant!



Save me, save the ocean

Hunting of blue whales was banned in the 1960s by the International Whaling Commission. A number of laws have been put in place to stop whalers from killing me. Yet, less than 10,000 of my buddies are alive today.



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Corals

Strange and small

I am a tube-shaped animal and look like a sac, or a small bag. My mouth is located in the centre of my body and is surrounded by long tentacles. I use my tentacles to save myself from enemies and to eat.

Although I do not have a brain, I can sense things around me with the help of a simple system of nerves.



Coral polyps feed on tiny animals called zooplankton and small fishes.

Bio

Weight: 20 mg; Length: 25 cm (mushroom coral); 1–3 mm (colonial coral); Lifespan: 2–3 years

Thousands of fish and other animals live on the reefs formed by corals.

We grow in different shapes depending on our species. Some of us resemble trees, brains, and also honeycombs. Our largest population exists in the "Great Barrier Reef", Australia, which is the largest coral reef biome found in the world.



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Did you know?

Coral polyps belong to the same group as the jelly fish family.



East coast of the UAE

Clear water and more suitable temperature and salt content in water off the east coast of UAE offer favourable conditions for coral settlement and growth. The UAE has a total coral reef surface area of 1,190 square kilometres.

Blast from the past

The Greeks believe that when god Perseus killed Medusa, a monster as per the Greek mythology, drops of her blood fell into the sea and became bright red corals!

Sticking together

My mates and I find a surface for ourselves and stick together, forming reefs. We also need the help of algae to build reefs. The algae gets in all the light from the Sun for photosynthesis. I usually eat at night and share my food with my mates. Our stomachs are connected to one another!

Plate corals are more common on the east coast of the UAE where the waters are more oceanic in nature, meaning they have high salt content.



Supporting marine life

My communities in the UAE not only manage to live in an extreme environment, but also provide home to thousands of fish and other animals. But the high incidence of disease in the southern Arabian Gulf is a natural threat to us. Also, increasing pollution and temperature are killing my mates across the world by turning them white. This is called coral bleaching.

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Who supports me?

Some laws are there to protect us. Trading us has been banned. My cousins live in aquariums around the world. But I love my natural habitat. The Great Barrier Reef is a sanctuary, where I am being protected.

Chinook salmon

I am the Chinook salmon. I am also known as “black salmon” or “winter salmon”.

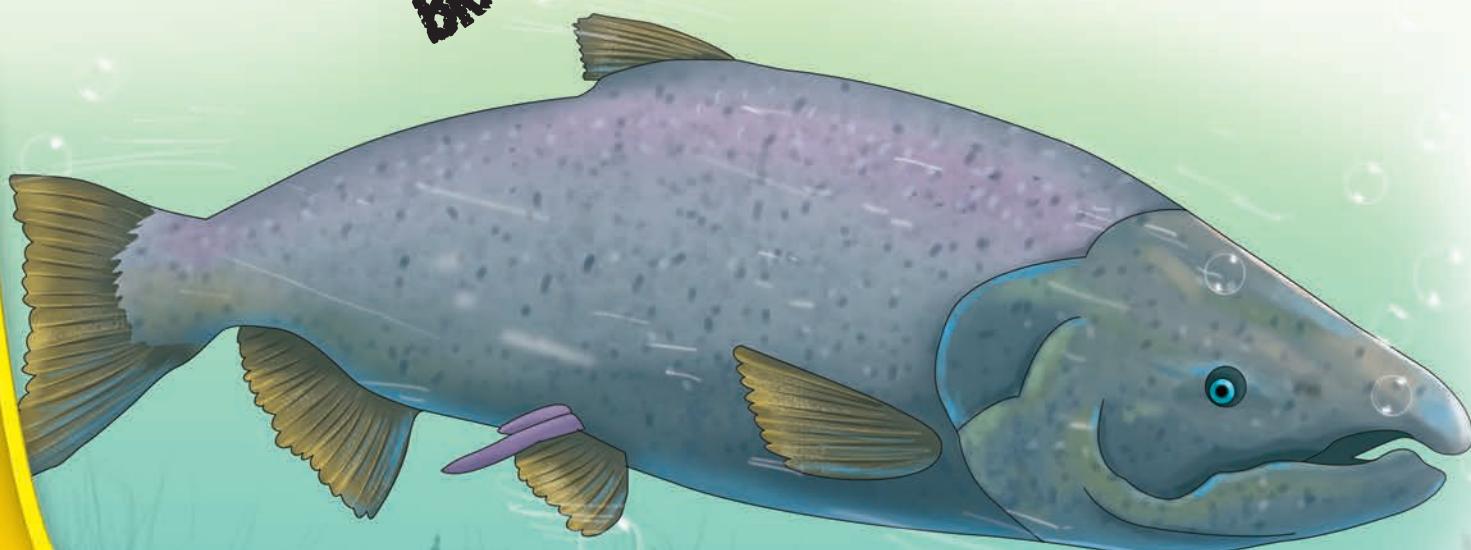
Blast from the past

The scientific name for the Chinook salmon is derived from two Greek words: *onkos*, meaning “hook” and *ryncchos*, meaning “nose”.

The colourful me

The top of my head and back are blue-green in colour. Both sides of my body are silvery, and I have a white belly. You can find some black spots on the upper half of my body. My mouth and tail are grey-black in colour. As I move into fresh river water, I change colour and become brown, red, or purple!

BB Weight: 13.6 kg; Length: 0.9 m; Lifespan: 1–8 years

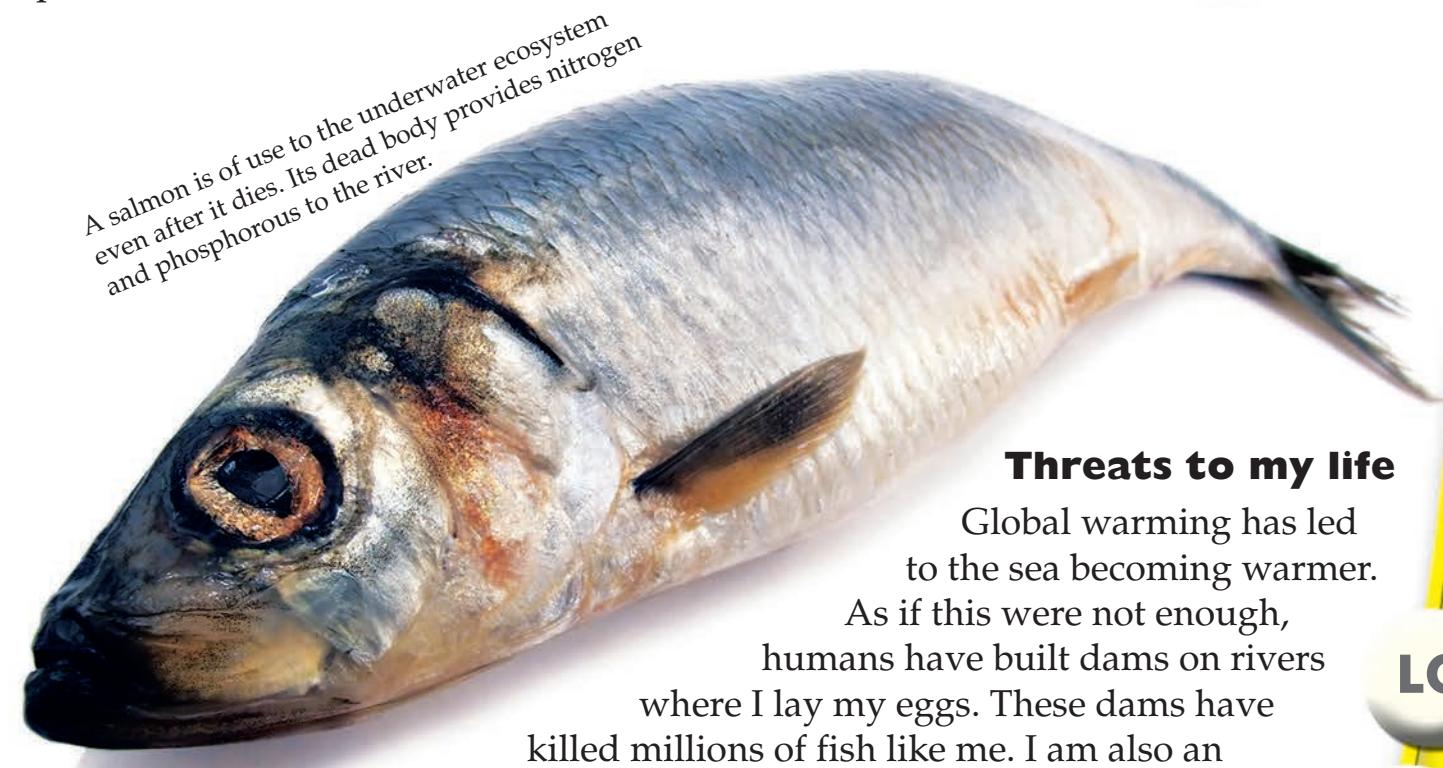


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Living on the edge

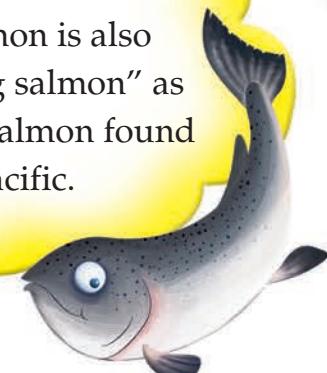
I spend my life in the sea. But when I have to lay eggs, I move inside the mouth of the river. I lay my eggs in nests, called redds, located at the bottom of the stream. When the eggs hatch, my young ones swim away into the sea. I die after I have laid the eggs.

I prey on other fishes like herring, sardine, and groundfish as well as squid and krill.



Did you know?

Chinook salmon is also known as "king salmon" as it is the largest salmon found in the Pacific.



Protected yet unsafe

I have been protected in countries like the United States and Canada through strict laws. Both countries have put plans in place to manage my survival. This has helped in a slight increase in our numbers across the world.

Threats to my life

Global warming has led to the sea becoming warmer. As if this were not enough, humans have built dams on rivers where I lay my eggs. These dams have killed millions of fish like me. I am also an easy catch and often end up on your dinner plate!

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Hawksbill sea turtle

A spectacular sight

I generally have a flattened body shape, a protective carapace, and flipper-like arms, adapted for swimming in the open ocean. You can easily distinguish me from other sea turtles through my sharp, curving beak, and the saw-like appearance of my shell margins. My shells change colours slightly, depending upon the temperature of water. My carapace, or upper shell, is heart-shaped, and it elongates as I mature. And the males have longer claws and thicker tails, and are brightly coloured than the females.



Did you know?

The hawksbill sea turtle gets its name from its distinct, beak-like mouth.



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The hawksbill sea turtle lays up to 160 eggs, on an average, at a time.



Blast from the past

Hawksbill sea turtle's shell, also called "tortoiseshell", has been sought for jewellery and ornaments for centuries.

The story of my eggs

I may take decades to mature, first breeding at 20–40 years of age. Our eggs take 45–60 days to hatch, after which the hatchlings emerge at night and make their way to the sea, if undisturbed by artificial beachfront lighting.

Habitat

We live in the clear, relatively shallow water of coastal reefs, bays, estuaries, and lagoons. But we generally go to remote, isolated sandy beaches of at least 60 countries, including the Arabian Peninsula, to lay eggs.

Our diet

When we grow up, we prey on other animals. We use our sharp beak to prize out prey from crevices in the reef. Sponges are the main component of our diet. But we also like to eat anemones, squid, and shrimp.

We are threatened

We face major threats to our survival. Our shell is prized and is illegally traded. There is also a substantial market for our eggs, meat, and even stuffed juveniles as exotic gifts in some parts of the world. We have suffered a drastic 80 per cent decline in the last century.

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Hawaiian monk seal

How do I look...

I am born on land. I have a grey to brownish coat and the skin on my chest is a little lighter than the skin around the rest of my body. The skin around my neck is folded. This makes me look like a monk wearing a robe with a hood! I have wing-like flippers and a torpedo-shaped body, which helps me swim.

Weight: 230–270 kg; Length: 2.1–2.4 m; Lifespan: 30 years

Bio

Blast from the past

The Hawaiian monk seal is said to have been the inspiration for stories about mermaids and the sea sirens, who sit on rocky beaches!

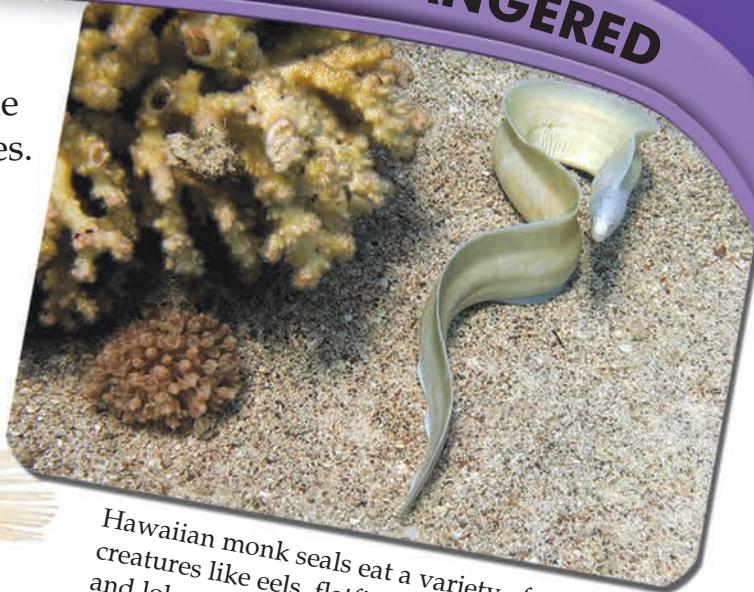
People in Hawaii know me as the “dog that goes in rough water”. I am the Hawaiian monk seal. I am the most endangered seal in the seas around the United States.



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What I eat

Females in my family give birth to one baby, known as pup, on sandy beaches. Mothers nurse young ones for six weeks. During that time, they live on the fat stored in their bodies and feed their babies with milk, which is rich in fat.



Hawaiian monk seals eat a variety of sea creatures like eels, flatfish, octopuses, and lobsters.



The Hawaiian monk seal can be submerged in waters as deep as 75–90 m while it eats!

Leaving my baby

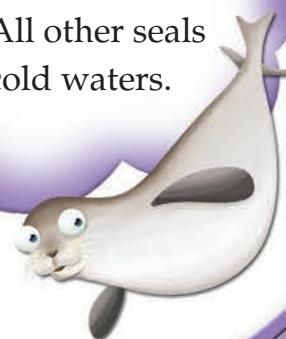
If the female spots a human coming close while she is nursing her baby, she swims away into the sea. The baby often dies. We also get caught in the nets spread across the seas by fishing boats. Humans have also taken away my food. They catch all the fish that I usually eat. To top it all, I am hunted.

Laws for life

Laws have been made in the United States so that I am not lost forever. Concerned people have been following a plan to capture the pups that are left behind by the mothers and give them a safe home. A number of other laws and plans have been made governments across the world.

Did you know?

The Hawaiian monk seals live in the tropics. All other seals live in very cold waters.



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Humpback whale

Did you know?

The humpback shows its strength by bringing its large body out of the water and diving back in. This act is called "breaching".



Humpback whales can eat 2,000–2,500 kg of plankton every day during the feeding season.

Ruling the seas

I have a stocky body with small, round humps on my lower and upper jaws, which are easily visible to the human eye. The upper part of my body is black in colour. There are knobs, or tubercles, on the top of my head – a feature unique to me.



Humpback whales are carnivores and eat plankton and tiny fishes.

What I do and how

I use a unique tactic, called bubble net fishing, to catch my prey. My mates and I circle beneath a school of fish and blow air bubbles, which form a curtain. Fish hesitate to swim across this bubble net and then, one by one, we dive forward and swallow hundreds of fish in one go!

Killed by humans

Whaling has destroyed my population. Very few humpback whales exist in the oceans today. Like other whales, blubber and various other parts of my body are used in making a number of products.

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Protection has only just begun

The International Whaling Commission was set up in 1955 to protect whales. Hunting of whales has been stopped since then. In 1973, I was put on the endangered species list in the United States. I hope this will stop humans from hunting me down for my blubber.

Weight: 40,000 kg; Length: 15–16 m (male); 16–17 m (female); Lifespan: 45–50 years

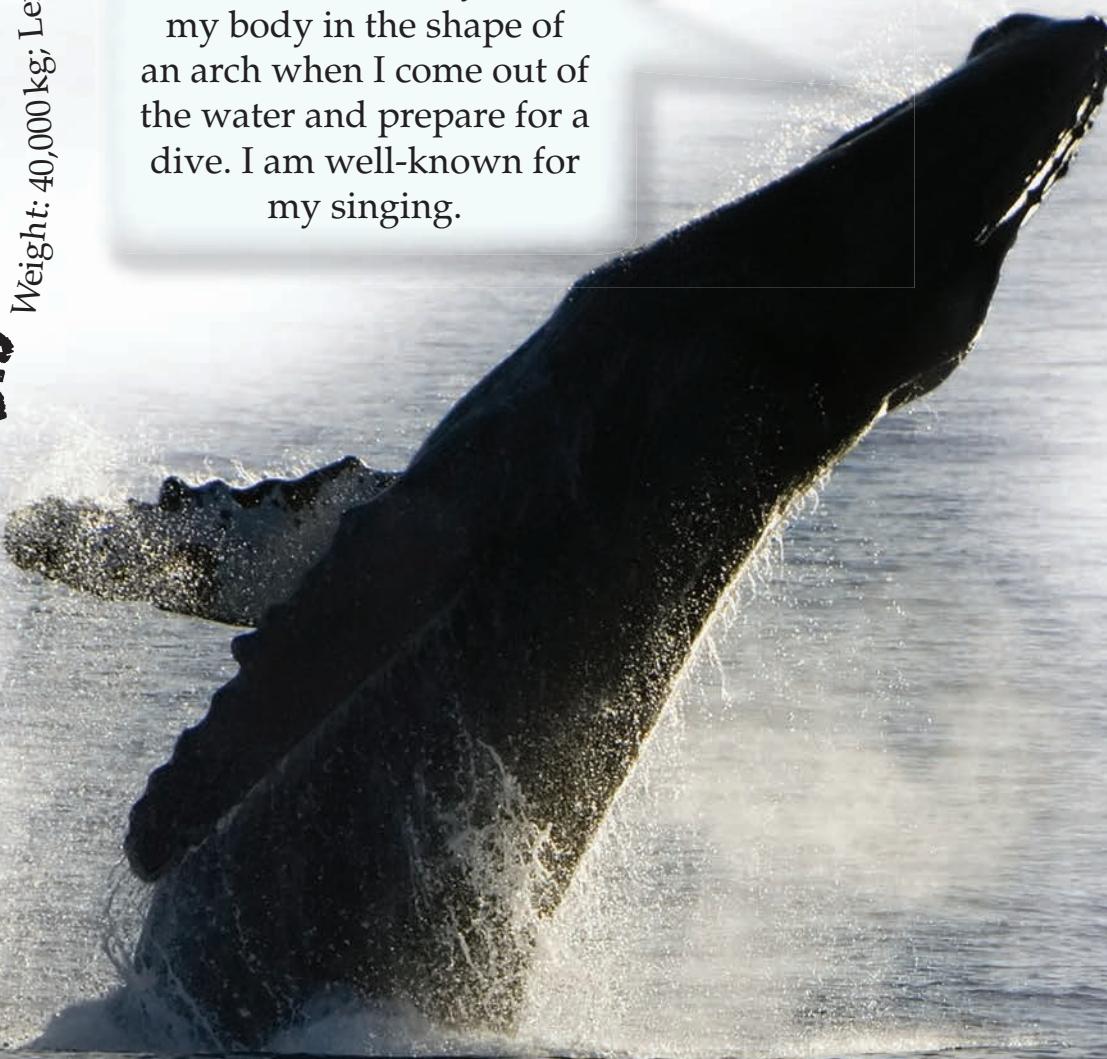
Look at me, I am the humpback whale. I am named after the way I raise my body in the shape of an arch when I come out of the water and prepare for a dive. I am well-known for my singing.

Blast from the past

Humpback whales have given rise to many legends and myths.

Many sailors heard them sing and thought they were hearing a sea monster!

Bio



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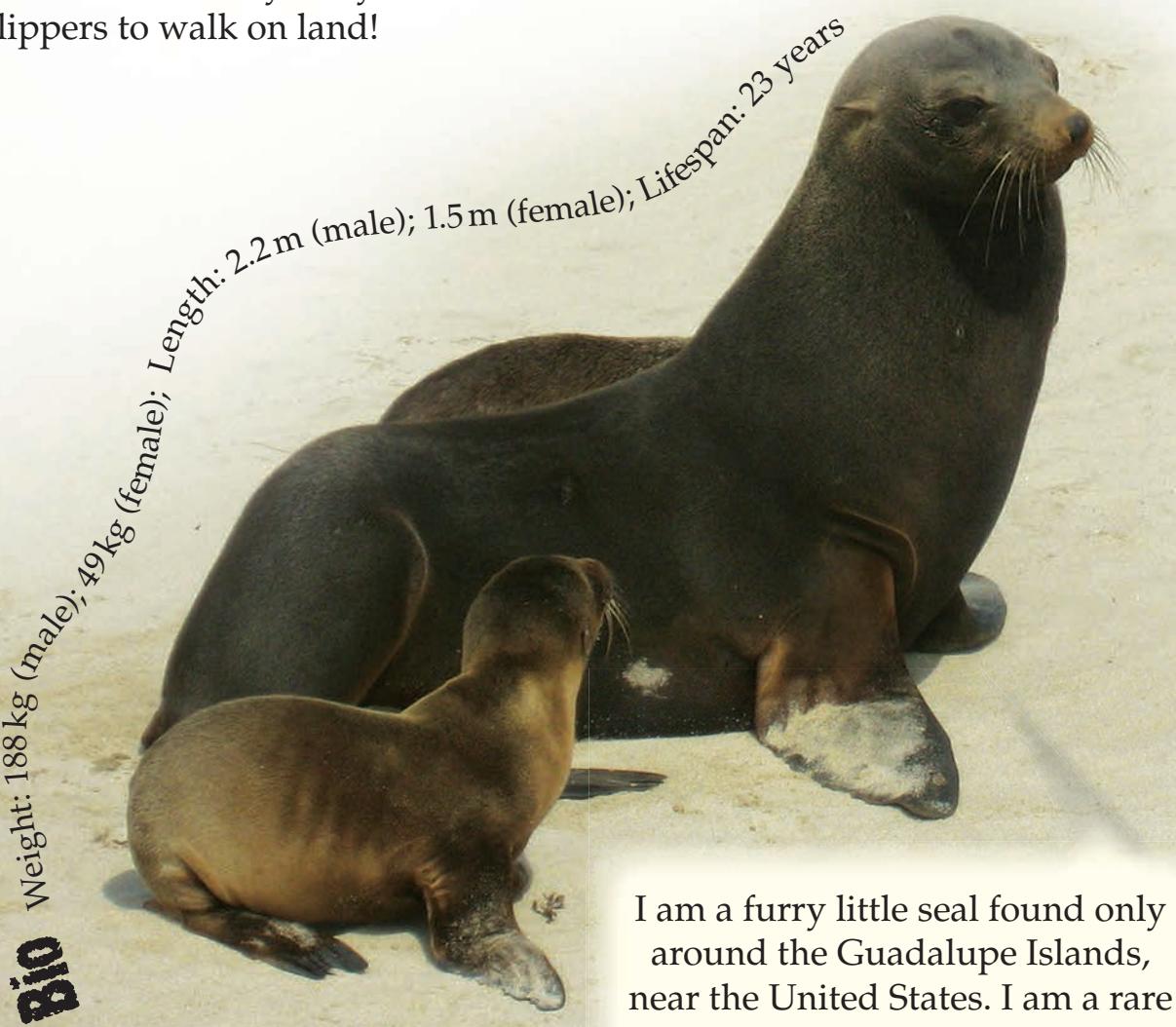
Guadalupe fur seal

The furry lion

I belong to the sea lion family. I am brownish-grey in colour and have a short mane around my neck, which is silvery to yellowish-grey. I have ear flaps on the outer side of my body. I have long flippers on the front and back of my body. I use my back flippers to walk on land!

Blast from the past

Fishermen used to believe that killing a seal was the best way to protect their catch of fish. This is not true. Making loud noises can deter seals from attacking the fish.



I am a furry little seal found only around the Guadalupe Islands, near the United States. I am a rare seal. And what is more, I am endangered.

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Guadalupe fur seals are also fond of many varieties of fish.

Going extinct soon

I was identified as a new species in 1897. Before that, people thought I was already extinct. I lost my home in California soon after. I am hunted and killed in Mexico and other countries even today. I survive only in the area marked out for me, near the Guadalupe Islands.



Very often, Guadalupe fur seals get injured when they get caught under ships.

Did you know?

Guadalupe fur seals are like dogs. They bark, and their young ones are called pups!



Let me live

I can live without fear in the Guadalupe Islands. Many laws have been put in place to protect me. Mexico has passed a law, which stops people from hunting me. I have been placed on the most threatened list by several concerned authorities around the world.

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Marine otter



Marine otters use their sharp front claws to catch prey.

Like the feel of land

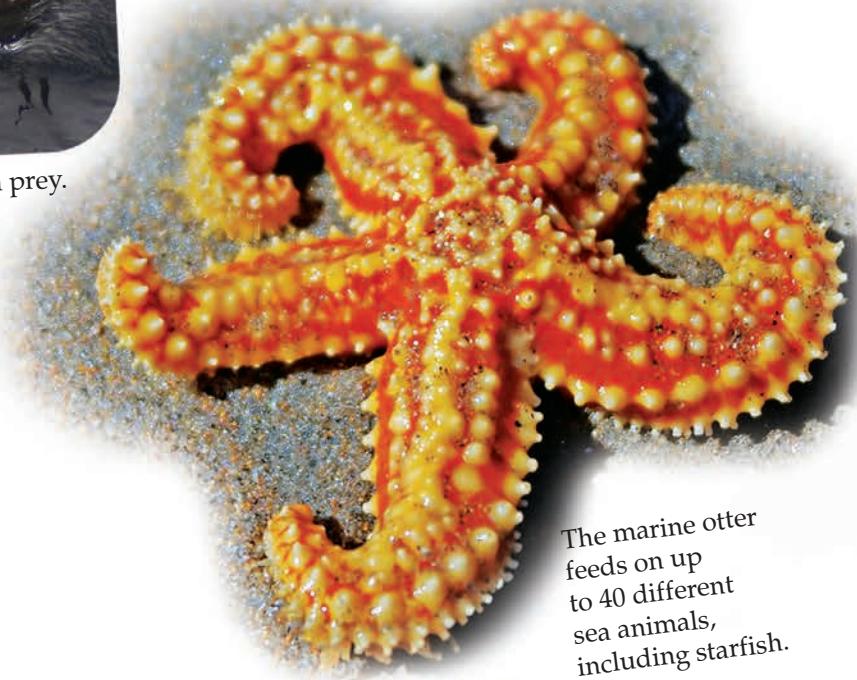
I am usually found lying on my back on land along the coast. But when I want to hunt for food, I travel very far into the sea. I am the only animal in the world that uses rocks and stones as tools to tear my prey open!

Endangered beyond doubt

Humans hunt me for my fur, which they use to make coats. Ships carrying oil often spill in the areas where I live, polluting the water. An oil-coated coat cannot keep me warm, and I do not have blubber to protect me. So, I can die of the cold. Many of my mates get killed by getting trapped in fishing nets.

As small as small can be

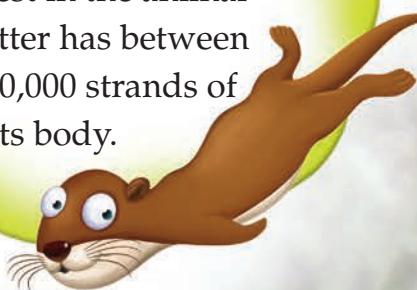
I am a small sea creature. I have an inner layer of soft fur and an outer layer of coarse hair. My coarse hair keep me dry under water and trap air, so that I remain warm in winter. My body is long, slim, and flexible. My feet are flat and located at the back of my body which makes it easier for me to swim.



The marine otter feeds on up to 40 different sea animals, including starfish.

Did you know?

The hair on a marine otter's body is the thickest in the animal kingdom. Each otter has between 850,000 and 1,000,000 strands of hair on its body.



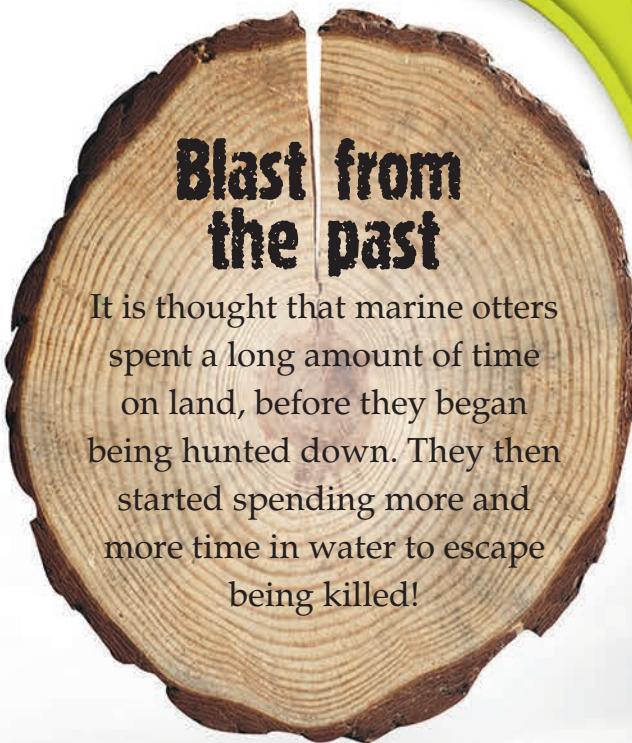
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I need to be protected

I am now protected by the law that puts a cap on hunting. The law also states that no part of my body can be sold. My numbers are increasing slowly.

I am a rare and poorly known South American mammal. Also, I am the smallest new world otter. My life is in danger, and it is up to humans to save me.

Bio Weight: 4.0kg~4.5kg; Length: 0.87~1.15m; Lifespan: 10 years



Blast from the past

It is thought that marine otters spent a long amount of time on land, before they began being hunted down. They then started spending more and more time in water to escape being killed!

The body of a marine otter is extremely slippery! When it decides to rest, it usually wraps itself with strands of weeds from the sea, so that it doesn't float away!



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Coelacanth

Discovering me

I have a hinged joint in my skull, which helps me widen my mouth to catch large prey. I also have an oil-filled tube called notochord, which is my backbone.

Did you know?

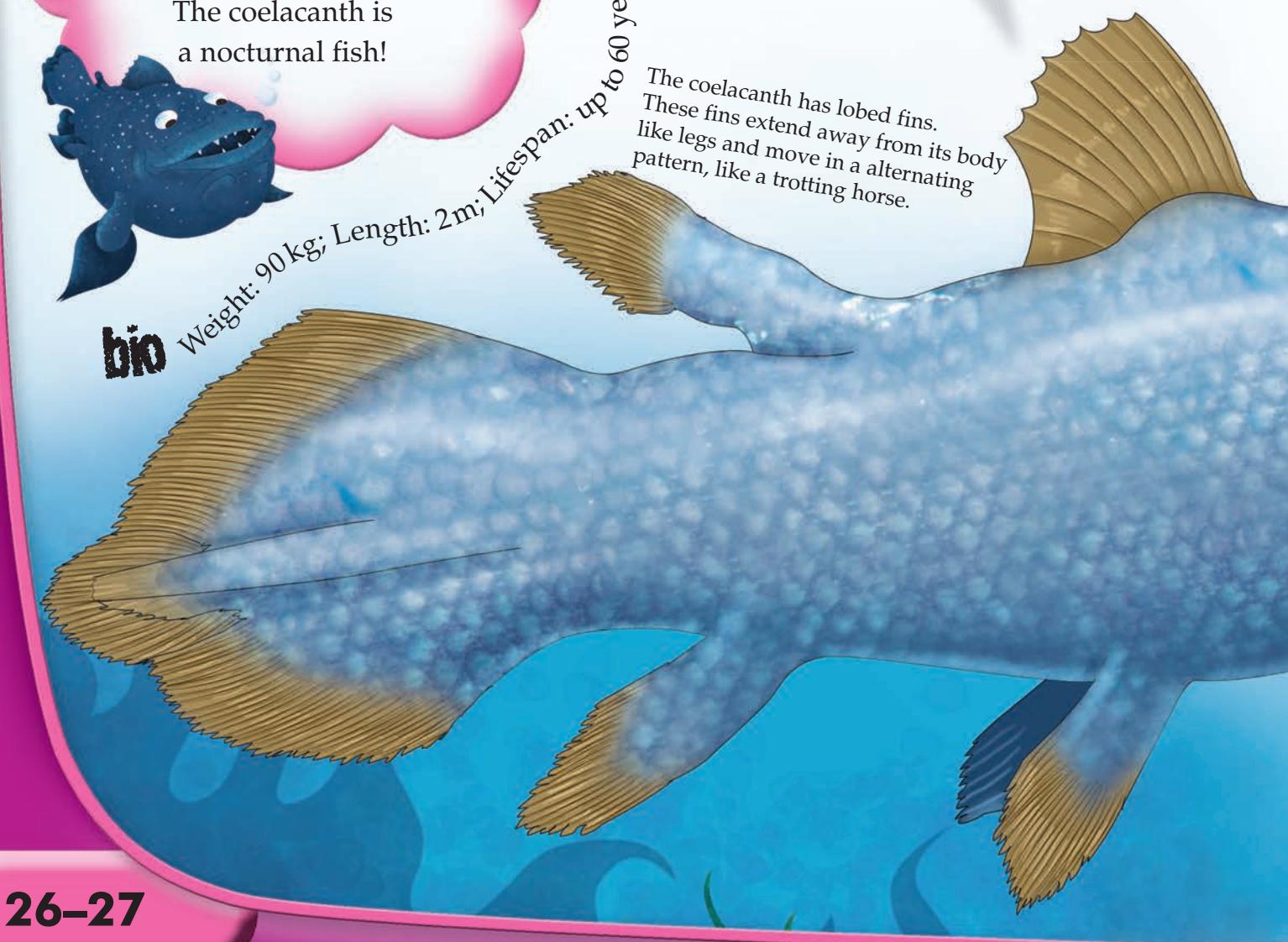
The coelacanth is a nocturnal fish!

bio

Weight: 90 kg; Length: 2 m; Lifespan: up to 60 years

The coelacanth has lobed fins. These fins extend away from its body like legs and move in an alternating pattern, like a trotting horse.

I used to live with the dinosaurs, and humans thought I became extinct with them. But in 1938, one of my mates was caught alive in the Chalumna River. Prof. JLB Smith recognized him as a coelacanth.



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Marjorie Courtenay Latimer,
curator of a museum in South
Africa, discovered the coelacanth
and sent it to Prof. JBL Smith.

Blast from the past

Even though scientists identified the coelacanth in 1938, people in South Africa had been eating the fish by drying and salting it for years!

Bottom-dweller

I look for prey near the bottom of the sea. I feast on lantern fish, stout beard fish, cardinal fish, cuttle fish, deep water snappers, squid, and many other varieties of fish.

My young ones are called pups. They are born from eggs that develop inside the mother's body.

Curiosity killed the coelacanth

After I was rediscovered, curious scientists wanted to know as much as they could about me. Hundreds of my family members were killed for research. Since the introduction of deep-sea fishing, many of us get caught in fishing nets. Though we are not caught for food, we often die in the struggle to free ourselves from the nets.



Other than the Comoros Islands off the east coast of Africa, the coelacanth can be spotted in the waters off Sulawesi, Indonesia.

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Save me, I am dying

Efforts are on to save me. The Coelacanth Rescue Mission gives deep-sea release kits to fishermen. If a coelacanth is caught by mistake, it is sent back in the release kit to deeper, cooler waters. The South African Coelacanth Conservation and Genome Resource Programme began in March 2002 and creates awareness about me.

Bottlenose dolphin

Being Roman when in Rome

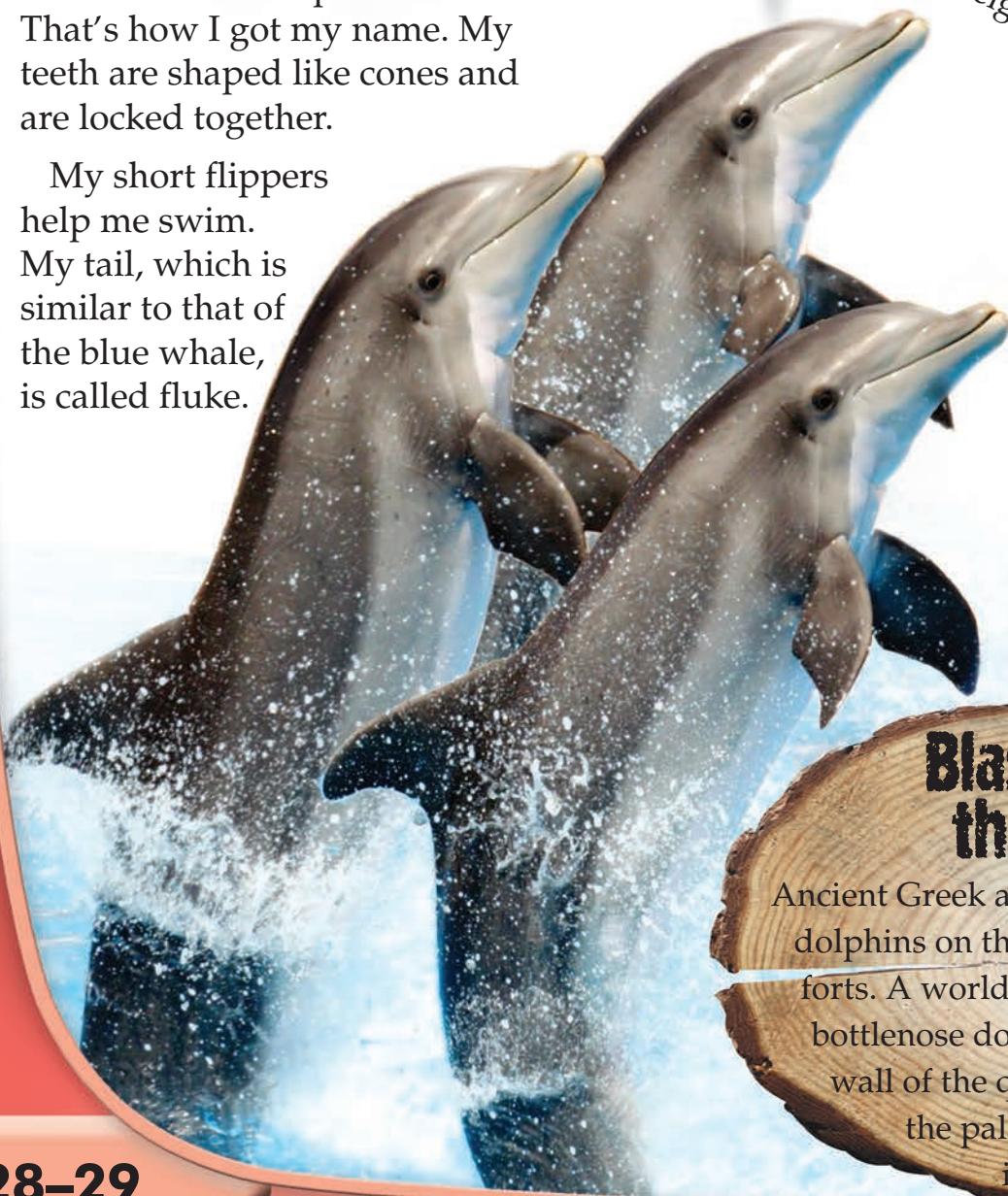
I have a very smooth body. I am grey-green or grey-brown in colour. The colour of my body helps me hide in water and protects me from my enemies. I have a bottle-shaped nose. That's how I got my name. My teeth are shaped like cones and are locked together.

My short flippers help me swim. My tail, which is similar to that of the blue whale, is called fluke.

I am one of the most intelligent sea animals in the world. I am the bottlenose dolphin. I am found across the Pacific, mostly around the coast of Florida in the United States. I am unique, but I am endangered.

Bio

Weight: 500kg; Length: 4m; Lifespan: 45–50 years



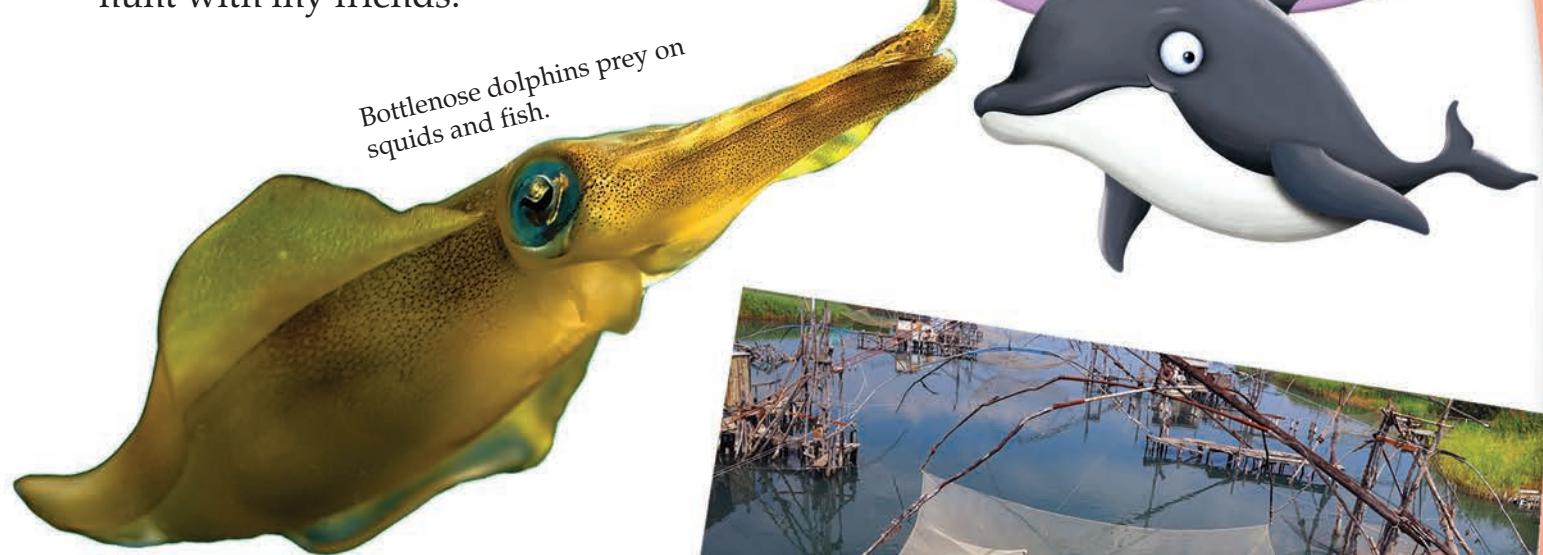
Blast from the past

Ancient Greek artists drew and painted dolphins on the walls of palaces and forts. A world-famous painting of a bottlenose dolphin appears on the wall of the queen's bathroom at the palace of Knossos in Crete!

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I am Mr Friendly

I am a very friendly animal. I live in groups, called pods. A pod is a unit of 5–7 dolphins. Males in my family usually like to live alone and move into groups of females. Young ones stay with their mothers for up to six years. I am very active, and I like to hunt with my friends.



Murder for oil

The fats in my body contain oil. Humans have been hunting me for this oil. They also kill me for meat. Sometimes, I ram into big fishing boats called trawlers, which are out in the sea catching tuna fish.



While swimming, bottlenose dolphins often get caught in gill nets.

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Save me now

The International Whaling Commission has taken some steps to protect me. In the United States, the Marine Mammal Protection Act is in place to save me. All these measures might help me survive.

Orca

Known for my fin

I have a dorsal fin, which grows up to 1.8 m in males and 1.2 m in females. I have a broad, rounded, and smooth body. I am black all over, except for the white patches over my eyes and belly.



Complex? That's me!

The head of my family is a female orca. I do not like to stay away from my family. And what's more, we even speak to one another from time to time! I am the only sea mammal that preys on other mammals like the blue whale.



An orca family lives together. About 18 members of the family come together to form a pod.

Facing the heat

Humans have been making life very difficult for me. They have been polluting the atmosphere and destroying the ozone layer.

This global warming is melting the ice on the poles. Without ice, seal – my one major source of food – will die, and I will starve to death as well.

Did you know?

I am a fast swimmer. I can reach a speed of about 48 km per hour!



Orcas not only feed on salmons and other fish, they also eat seals and sea lions.

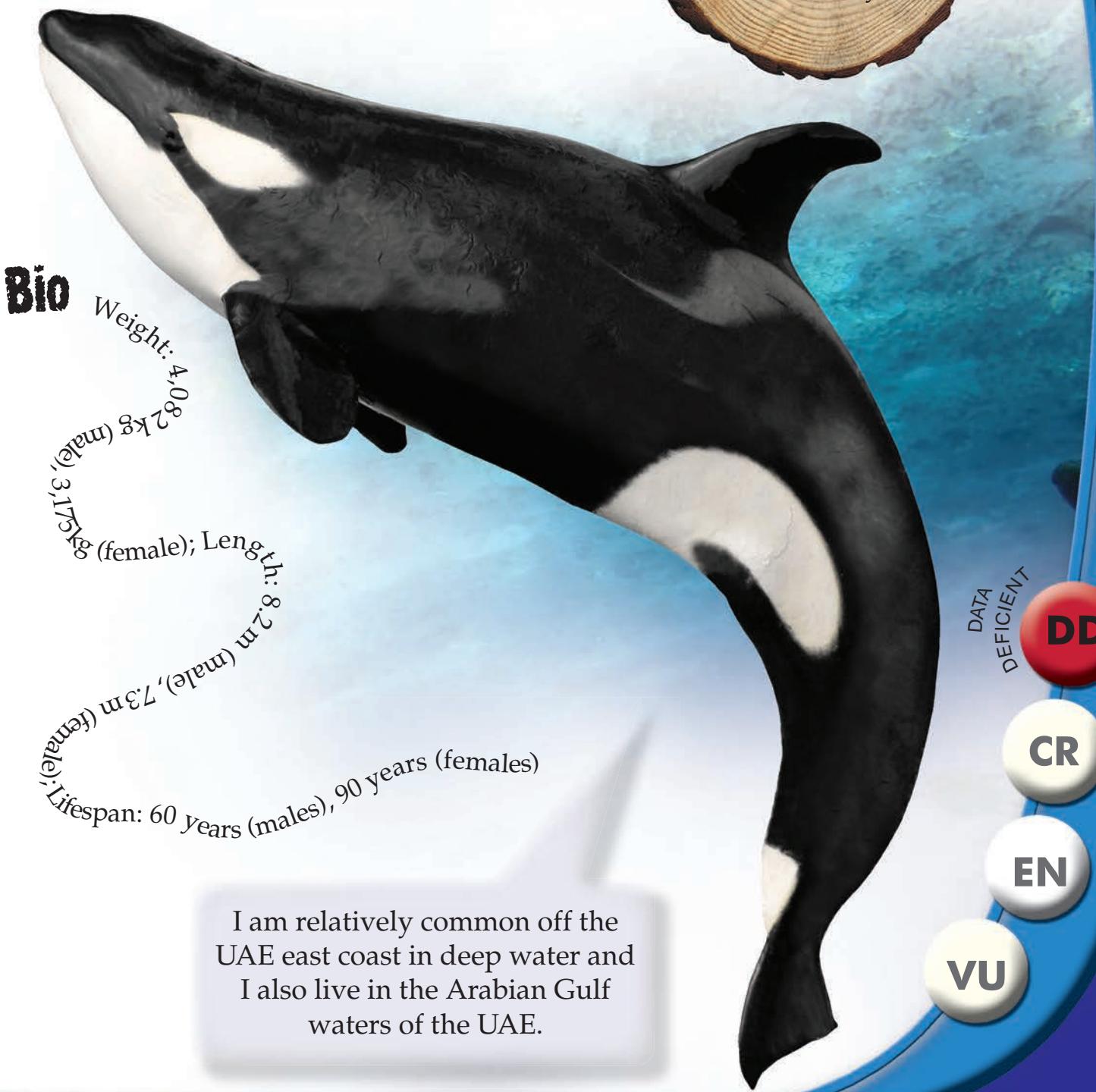
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But I can be saved

A number of actions are being taken to save me. The United States has banned the killing of orcas in their waters. Zoos around the world have taken in a number of my mates and are breeding them. People, who care about me, have also come together to tell others that killing me will destroy the ocean ecosystem.

Blast from the past

Orcas have been around for more than 10–12 million years.



Narwhal

Unicorn whale

The tusk, on the left side of my head, is actually a tooth. It can reach a length of up to 2.7 m. The upper part of my body is ridged and uneven. I am bluish-grey in colour when I am born, and I slowly turn solid grey or black as I grow up! I have a short beak and a rounded, bulb-like forehead.

Have you ever seen a whale with a tusk?

Look at me, I am the narwhal. I am the rarest whale in the world and I live in bone-chilling waters.

BIO

Weight: 726 kg–1,451 kg; Length: 4–5 m; Lifespan: 25 years or more



Blast from the past

In the Middle Ages, Europeans believed that the tusk of the narwhal was actually that of a unicorn.

They thought that it had magical powers, and used it to make cups for drinking "magic potions".

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Female narwhals sometimes have tusks, but these do not grow as big as the tusks of male narwhals.

Using my weapon

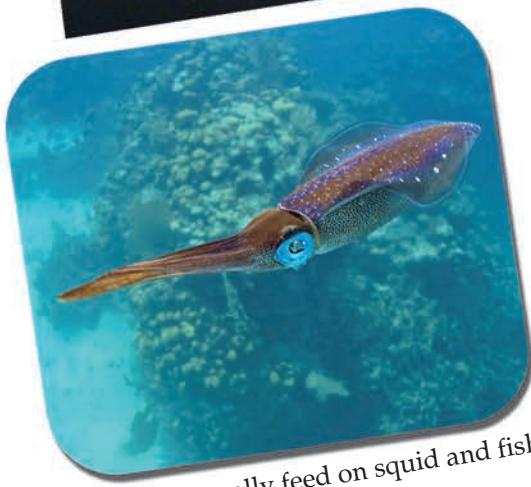
I use my tusk as a weapon. I get into fights with my mates (and enemies) over food and female narwhals.

Very few of my teeth actually help me in eating. My neck is quite flexible, and I use it to look around for food.

Narwhals often travel in groups of up to 20 members. They feed on a variety of fish and aquatic creatures.

Did you know?

I usually have one tusk but some of my mates have two.



Narwhals usually feed on squid and fish.

Value my life too!

A number of people, concerned about me, have raised their voices against my disappearance. Some countries, like Canada, have laws to protect me. But much more needs to be done before I can feel safe in the sea.

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Hamour fish

I can be easily identified

I am a large, robust-bodied, predatory fish found in the Indian and western Pacific ocean. I am distinguished by the tightly-packed, small, dark brown spots scattered across my head, body, and fins. This spotting is most obvious across the upper parts, becoming sparser on the largely whitish under parts. Also known as the Orange Spotted Grouper, I have a deep and slender body, with a slightly truncated tail fin, and large, conspicuous eyes, which sit behind a gaping jaw armed with an array of strong, slender teeth. I am different from other Grouper fish, as I have more, larger spines in the dorsal fin and fewer, smaller scales on my body. I am one of the largest coral dwelling fish. I have large pectoral and caudal fins that enable me to ambush my prey.



Did you know?

Unlike other fish, Hamour fish does not die easily after it is taken out of the water.



BIO

length: 35–45 cm; weight: up to 7 kg; average lifespan: 29 years

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Predators are usually warned off by an impressive display of mouth gaping.



This delectable fish makes up one out of every two fish orders in restaurants across the UAE.

You should know

I am shy and lazy, and one can see that through my habits. I hide in my cave opening or in between corals and wait for some unsuspecting prey to pass by close enough to be pounced upon and swallowed whole. I have the remarkable ability to change my sex, starting life as a female and, more often than not, later changing to a male. To be more precise, once the females grow up to around 35–45 cm in length, some of them become males.

Habitat and food

I am most often found in and around coral reefs, but I occupy a variety of other habitats too, including seagrass beds and reef slopes. I am a dominant predator in my habitat and I largely feed on small fish and crustaceans.

I need protection too

I hold immense economic importance in the UAE and several countries in Southeast Asia. Intense exploitation has led to decline in my numbers in these parts. Being a staple food in the Gulf, I am overfished, which is the reason behind my reducing population. It is estimated that I am currently being fished at seven times my sustainable limit. Also, more and more small, immature fish from my family are targeted. As a result, there are not enough mature females to breed and there are not enough males too. Many organizations have taken drastic measures against the fishing of hamours.

Note: This species is critically endangered (CR) in the UAE.

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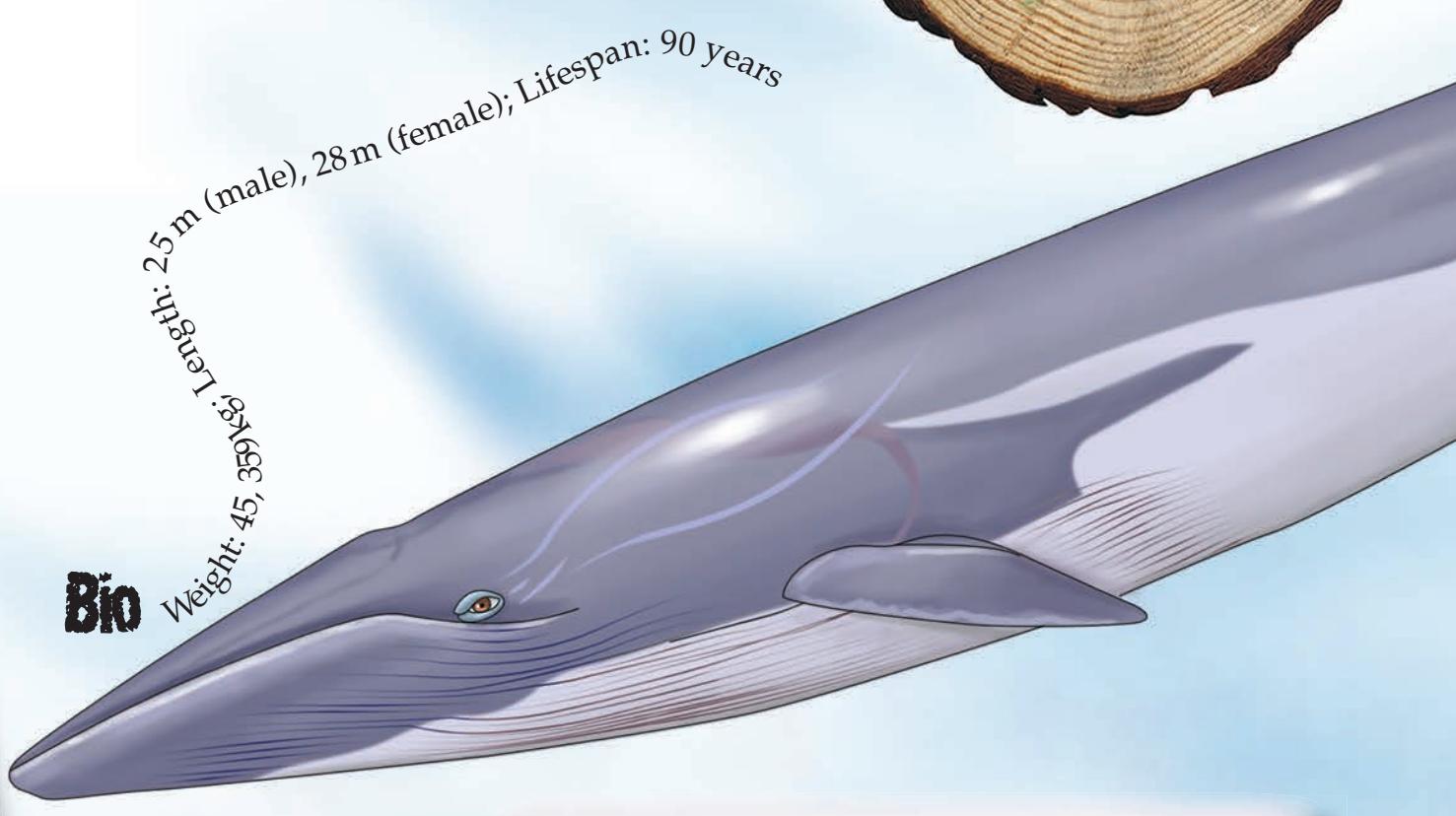
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Fin whale

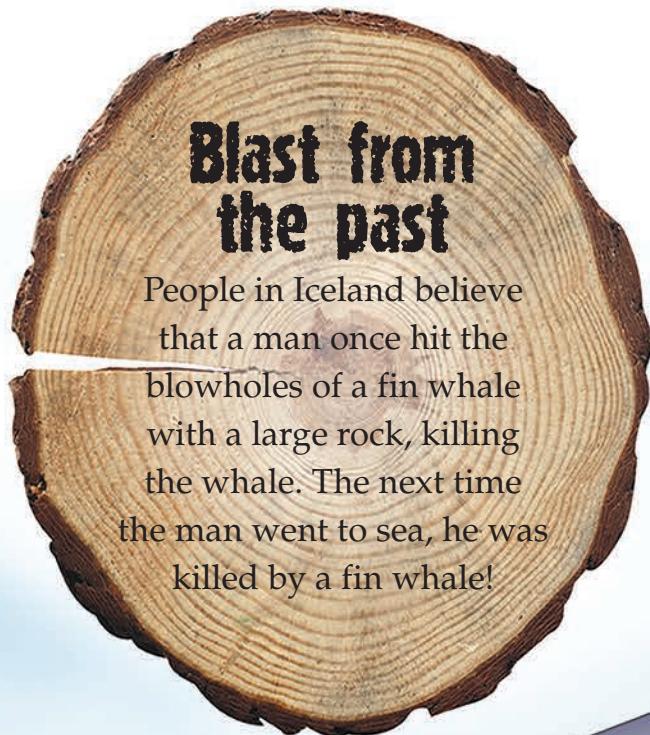
A designer whale?

I am known for the unique design on my back. The left side of my back is bluish-grey, while the right side is white. My tail and my flippers, which are located in the front of my body, are also white in colour. I am also known for the single large fin on my back, which often falls away.



Blast from the past

People in Iceland believe that a man once hit the blowholes of a fin whale with a large rock, killing the whale. The next time the man went to sea, he was killed by a fin whale!

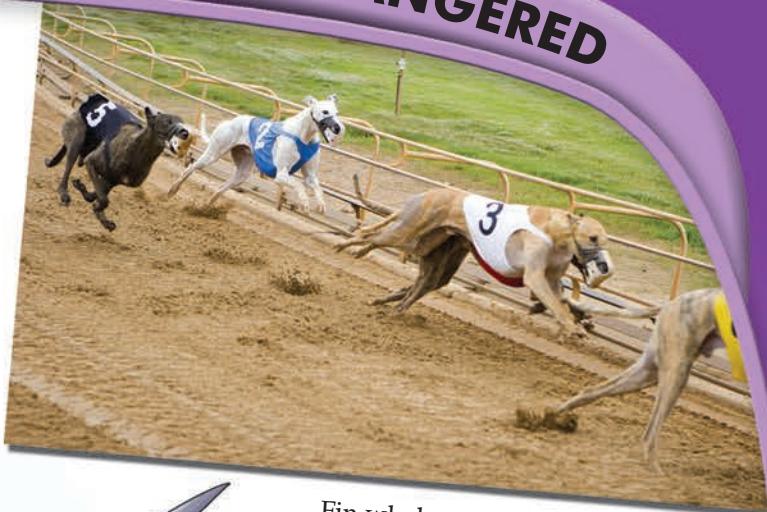


I am found almost everywhere in the world. I am the fin whale. My numbers are falling so rapidly that I could be gone forever before my next splash in the water.

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Did you know?

Fin whales cannot remain under water for more than 30 seconds.



Fin whales are the fastest of all large whales. They can travel at a speed of 12 m per second, earning the name "greyhound of the deep"!

Two is cool

Fin whales are always found in pairs. And boy, I am fast. My speed often protects me from my enemies. I can dive to depths of more than 30 m. I move to colder waters during summer, where food is in plenty. I usually circle a large school of fish a number of times. Once the fish have moved very close together, I gulp them all down in one go. I eat close to 1,814 kg of food every day!

Eating my way to death

I am hunted for blubber too. On top of that, humans spill large amount of oil into the sea, which chokes and kills me.

Keeping the fin whale alive

People concerned about my survival have seen to it that steps are taken to save me. Dumping oil into the ocean has also been listed as a crime. Throwing rubbish into the sea is also not allowed any more. Laws have been passed to put a stop on fin whale hunting.



Fin whales often end up swallowing plastic and other rubbish that humans dump into the sea, choking to death.

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Sea dragon

Hello, Mr Horsy!

I am not a sea horse, even though I look like one. I am a sea dragon. I have tail-like features that extend from my body. These look like leaves or like weeds. I swim by jerking my head and back regularly, like a toy horse.

Blast from the past

Sea dragons are believed to have appeared on the Earth about 45 million years ago!

Unique in more ways than one

Females sea dragons place their eggs on the tail of a male sea dragons. The males carry the eggs around until they hatch. The young ones get off their father's back the moment they are born and start eating zooplankton.

Bio

Length: 35 cm (leafy sea dragon), 45 cm (weedy sea dragon); Lifespan: 10 years (in captivity)

The sea dragon neither has a stomach nor teeth. It eats by sucking in food through its long snout, which looks like a pipe.

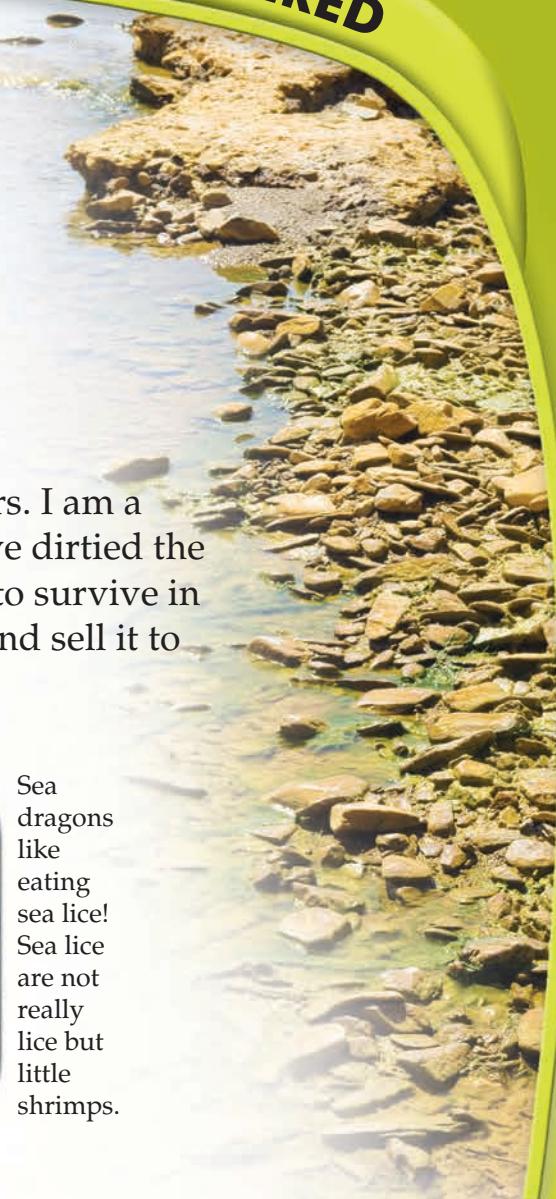


I am a sea dragon. I am either weedy or leafy. Weedies are the most common sea dragons found in the sea surrounding Australia. We may soon disappear from the seas.

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Did you know?

The tail of a male leafy sea dragon turns bright yellow when it sees and likes a female leafy sea dragon!



Enemies all around

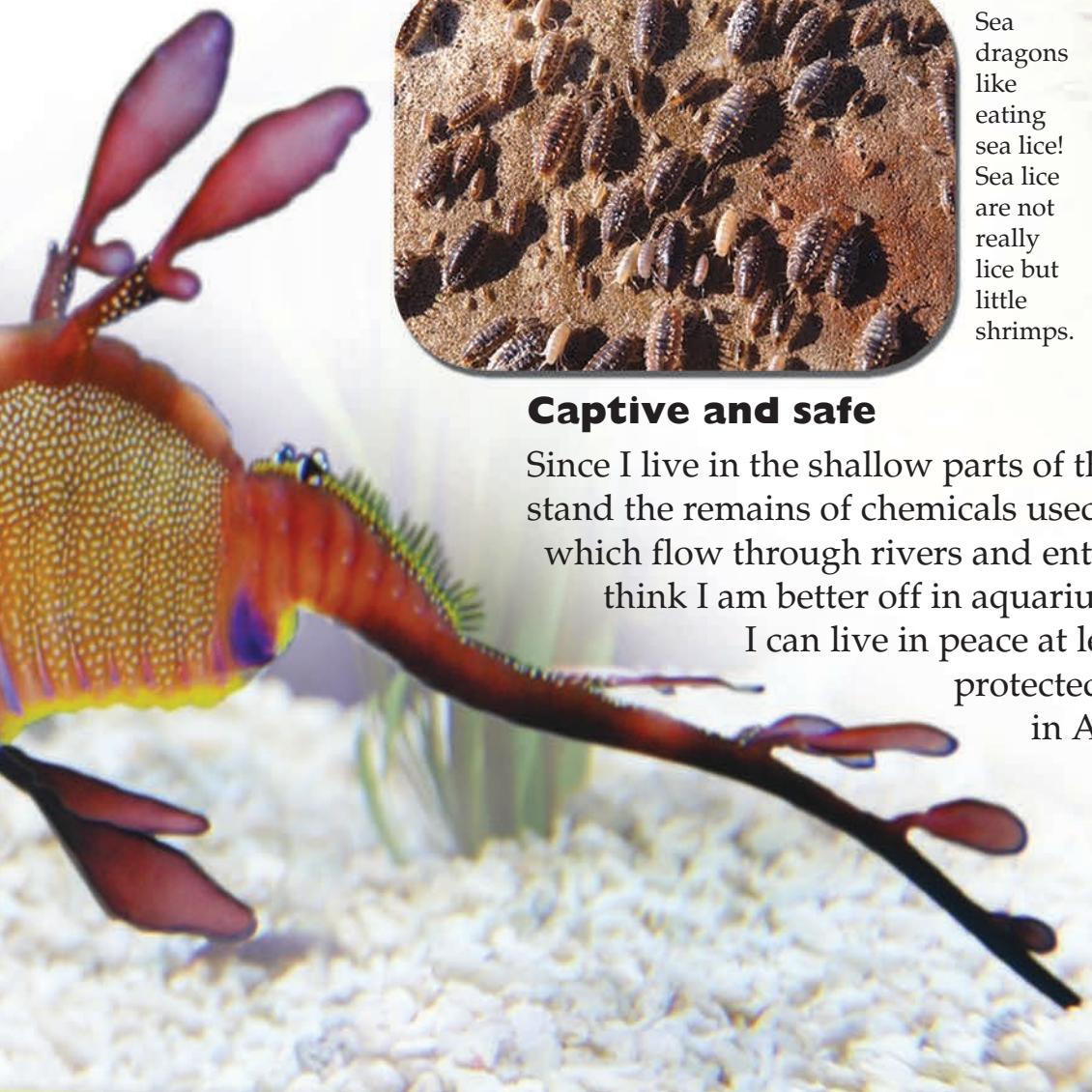
Large and medium-sized fish are my greatest predators. I am a bad swimmer and cannot defend myself. Humans have dirtied the sea water so much that it is becoming difficult for me to survive in it. People also hunt me down, dry my body, crush it, and sell it to those who use me to make medicines.



Sea dragons like eating sea lice! Sea lice are not really lice but little shrimps.

Captive and safe

Since I live in the shallow parts of the sea, I cannot stand the remains of chemicals used in farming, which flow through rivers and enter the sea. I think I am better off in aquariums. There, I can live in peace at least. I am protected by law in Australia.



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Shark

Different from all else

I have a unique boneless skeleton made up of hard elastic cartilage – the same soft, bone-like material that is found in your nose and ears! One part of my skeleton supports my head and trunk. The other part holds the fins together. My skin is covered with tooth-like structures, called denticles. This makes it feel like sandpaper.

Here the danger lurks

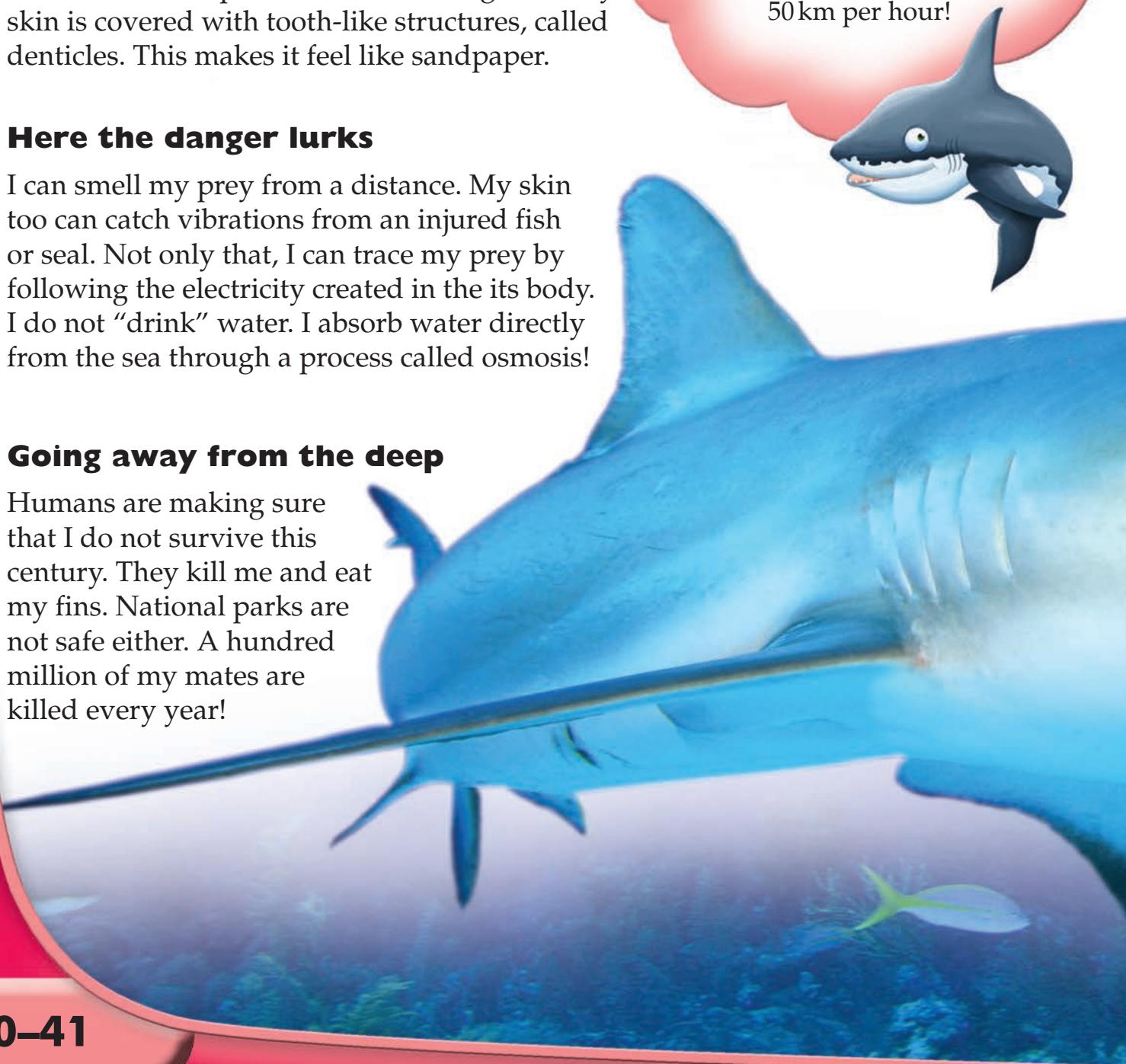
I can smell my prey from a distance. My skin too can catch vibrations from an injured fish or seal. Not only that, I can trace my prey by following the electricity created in its body. I do not “drink” water. I absorb water directly from the sea through a process called osmosis!

Going away from the deep

Humans are making sure that I do not survive this century. They kill me and eat my fins. National parks are not safe either. A hundred million of my mates are killed every year!

Did you know?

Sharks can travel at speeds up to 19 km per hour. The shortfin mako shark is the fastest fish in the world. It can travel at 50 km per hour!



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Blast from the past

Sharks appeared on the Earth 400 million years ago. That's 200 million years before the age of dinosaurs!

A shark's teeth are not attached to its jaw. They grow out of the flesh, and keep growing all through its life! When one tooth gets damaged or drops off, another one replaces it.

Saving jaws

Experts and people who do research are using scientific methods to study my life cycle and come up with solutions for the problems I face. They are using satellites to track my movements and save me from being hunted.



The word "shark" was first used in the 1560s to refer to sharks found in the Caribbean Sea.

The shark's body is streamlined and looks like a torpedo. This shape helps it swim.

Bio

Weight: 680–1,100 kg; Length: 4.5 m; Lifespan: 25 years

I am a large ferocious fish with sharp teeth. I can tear anything apart with a twist of my jaw. But my cousins dwelling in the UAE waters have been reportedly less aggressive.

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Steller sea lion

The warm-blooded lion

I have flippers at the back of my body that I use to stand and walk. I have a tan and golden-brown coloured coat, which protects me from the chilly weather. I also have a thick layer of fat under my skin. I have sharp teeth and a skull that is much like a bear. I have whiskers which help me to sense my prey.

Did you know?

Stellar sea lions make a slow roaring sound.



I am the Stellar sea lion – the largest member of the sea lion family. Alas, my friends and I are more endangered today than ever before.

Bio

Weight: 700 kg (male), 300 kg (female); Length: 3 m (male), 2.3 m (female); Lifespan: 20 years

Sea lions are pinnipeds, that is, they have fin-like limbs in the front part of their body. They use these limbs to move through water and sometimes to walk.

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King of the seas

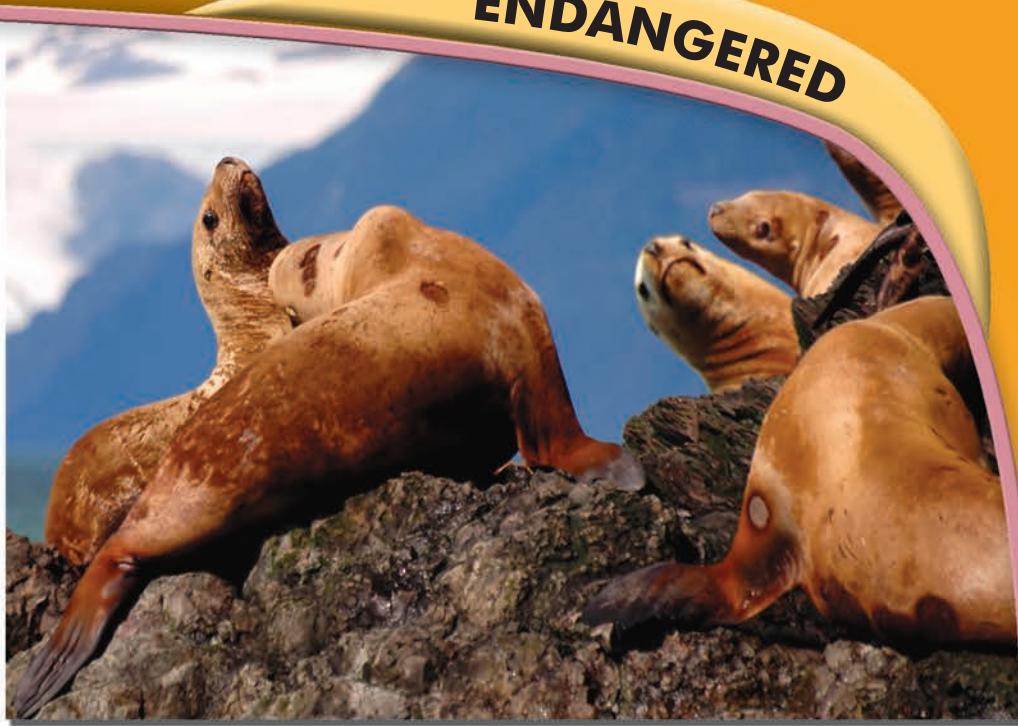
I am a meat eater and use my sharp teeth to tear the flesh. But I only eat fish that I catch myself. I also often feed on squid. Females in my family give birth to young ones on land. These pups are able to crawl and swim very soon after birth.

Fighting my enemies

Among all creatures in the sea, only the killer whale is my natural enemy. But humans have been hunting and killing me for many years now. People in Alaska kill me for food and my hard, coarse skin, which they use to make boats.



Stellar sea lions live in caves, which have become a tourist attraction.



Sea lions are mammals, so they are warm-blooded. They cannot remain in water for more than five minutes because they need to come up to the surface to breathe.

Blast from the past

The Stellar sea lion is named after the German explorer George Wilhelm Stellar who first discovered these animals.

Protection

has only just begun

Curious people visit our caves to see how we live. But those interested in saving me ask these tourists to stay at a safe distance so that I am not disturbed or harmed. I am protected by law in Canada. No one is allowed to hunt or kill me in that country.

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Fighting for the fins

The World Conservation Union, or the IUCN as it is popularly known, is the world's largest organization that works for the protection of nature and natural resources. The headquarters of the IUCN are in Switzerland. The IUCN prepares lists of threatened plants and animals every year. Scientists at the IUCN study the current population of the species as well as where it is found. The organization then tries to help countries develop ways and means to conserve these dying creatures. The IUCN categorizes species as follows.

Extinct: If the last individual of a species is believed to have died, the species is considered extinct. The Yangtze River dolphin, or Baiji, was officially declared extinct in 2007.

Extinct in the Wild: A species is thought to be extinct in the wild if it can no longer reproduce on its own. Cuttings of such plant species have to be used to produce them, and animals have to be bred in zoos or sanctuaries.

Critically Endangered: Any species is thought to be critically endangered if data suggests that it might become extinct in the wild in the next ten years. This means that its population has reduced significantly, and it will no longer be found in the regions where it used to be. Animals like the gorilla, gharial, rattlesnake, shark, flying fox bat, fox, a large number of trees, and a few species of fish, frogs, parrots, toads as well as corals have been declared as critically endangered.

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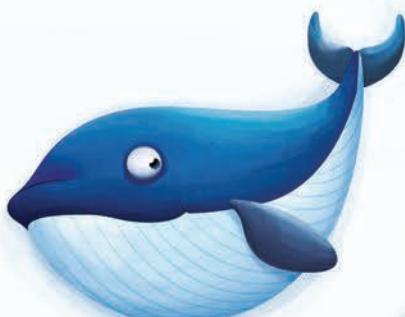
Endangered: Animals like the gazelle, Egyptian vulture, parakeet, blunt-nosed leopard lizard, the Hawaiian finch, green sphinx moth, sawfish, a few species of owls, frogs like the African reed frog, and the Slender Loris are listed as endangered. The survival of these animals is in extreme threat in the next ten years.

Vulnerable: The IUCN groups the animals that face a threat but can be conserved in the near future as vulnerable. This group includes the white-headed vulture, the alligator lizard, the lemur, the shark ray, the butterflyfish, the common hippopotamus, the giant gecko, and a few crocodile species. These animals might soon be included in the endangered or critically endangered categories if steps are not taken immediately to protect them.

Near Threatened: Species that are not vulnerable, endangered or critically endangered but might fall into any of those categories soon are classified as near threatened.

Least Concern: Species that are widely found in plentiful numbers are classified under least concern.

Note: *The conservation statuses in this book are not solely based on the IUCN Red List. For some creatures, national and local data have been used.*



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Glossary

atmosphere: a blanket of gases that surrounds the Earth or any other planet

carapace: a shell-like protective covering

cartilage: a tough, flexible bone-like material

denticles: teeth-like structures

dorsal: relating to the back or the upper side of the body

gill net: a curtain like fishing net suspended vertically in water

migration: the movement from one region or climate to another for feeding or to give birth

ozone: a form of oxygen gas. The ozone that is present in the upper layers of the atmosphere prevents the harmful rays of the Sun from reaching the Earth. But ground-level ozone is a pollutant.

photosynthesis: the process by which green plants make food

spring steel: a kind of metal

tentacles: long, flexible organs on the head or near the mouth or certain invertebrate animals. The animals use these to feel and grasp.

unicorn: a mythical creature. It looks like a horse and has a horn on its forehead.

zooplankton: small microscopic animals

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THIS IS A GREEN BOOK



About the Environment Agency – Abu Dhabi (EAD)

Established in 1996, the Environment Agency – Abu Dhabi (EAD) is committed to protecting and enhancing air quality, groundwater as well as the biodiversity of our desert and marine ecosystem. By partnering with other government entities, the private sector, NGOs and global environmental agencies, we embrace international best practice, innovation and hard work to institute effective policy measures. We seek to raise environmental awareness, facilitate sustainable development and ensure environmental issues remain one of the top priorities of our national agenda.

For more details, please visit:

<http://www.ead.ae>

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Life in the WATER

In 2008, the Caribbean monk seal, which was last sighted in 1952, was declared extinct. It died out because it was overhunted by humans. Today, several other marine species – from salmons and sharks to otters and sea lions – face the same threat. Learn more about the mysterious life under the sea and what you can do to save it.

Other titles in this series

Life on Land

Life in the Sky

Life in the Amphibian World

Life in the Reptilian Realm

Life in the Plant Kingdom



هيئة البيئة - أبوظبي
Environment Agency - ABU DHABI



The Energy and Resources Institute

