

Kina | Sea urchin

Evechinus chloroticus

Outer shell & Aristotle's
lantern mouthpiece



- Loves to eat seaweed
- Lives in fear of large snapper jaws!

Kina | Sea urchin

Evechinus chloroticus

Habitat

Rocky shore to 60m deep.

Diet

Nocturnal grazer that feeds on seaweed and algae. A grinding mill, called an Aristotle's lantern and made of five teeth, allows for chewing of tough plant material.

Predators

Snapper, crayfish and other large fish.

Human impact

Humans have been harvesting them for hundreds of years for food.

PROBLEM

Kina populations are increasing, this means they are going to eat lots of seaweed that young fish like to hide in. How do you think we are able to control this?

Pipi

Paphies australis

Shell



- Hides in the sand at the beach

Pipi

Paphies australis

Habitat

In the sand. May stick one side up out of sand.

Diet

Filter feeds: sucks water into its shell and filters out plankton to eat.

Predators

Fish, crustaceans, crabs, humans.

Human impact

Humans have been harvesting them for hundreds of years for food.

Info

Sometimes pipi bunch together into what is called a 'bed'. Some pipi beds may have 1000-2000 individuals per square meter!

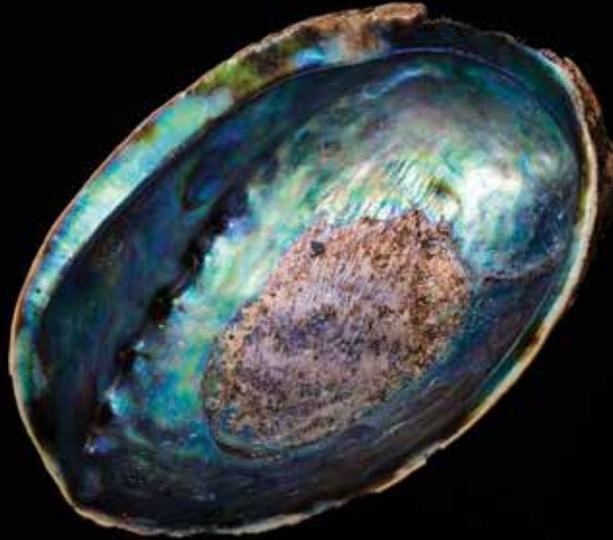
QUESTION

The daily limit for pipi collection is 150 per day, although there is no size limit. It is recommended only large individuals be collected, why do you think that is?

Pāua | Abalone

Haliotis iris

Shell



- Rocky on the outside, sparkly on the inside

Pāua | Abalone

Haliotis iris

Habitat

Lower rocky shore and found under ledges and boulders.

Diet

Grazes on seaweed and algae.

Predators

Crabs, octopuses, sea stars and fish.

Human impact

Humans have been harvesting pāua for hundreds of years as a food source. Their shells are also used as jewellery and decorations.

Info

Pāua use a radula, a ribbon-like structure studded with hundreds of tiny, hard, sharp teeth, to eat tough seaweed and algae. It has been described as something between a cat's tongue and a chainsaw.

DID YOU KNOW?

Many Māori carvings have pāua in eyes which gives them a lifelike appearance. People sleeping underneath these carvings in a whare sometimes feel like they're being looked over as they sleep at night.

Kāunga | Hermit crab

Paguridae spp.

Exoskeletons



- Living in the rock pools, I'll eat anything!

Kāunga | Hermit crab

Paguridae spp.

Habitat

Live in empty shells in rock pools.

Diet

They scavenge, hunt and filter feed.
They're not fussy!

Predators

Sharks, fish, squid, octopus.

Human impact

Humans like to collect shells which hermit crabs need to live in. Coastal pollution is so bad in some areas that populations are dying out. Some hermit crabs resort to living in plastic lids instead of shells.

DID YOU KNOW?

When hermit crabs get bigger, they need to change shells. Some species line up in size order with the largest crab at the front. As the large crab inspects and moves into its new shell, the second crab in line will take the larger crab's old shell. This continues down the line.

Pūngorongoru | Finger sponge

Raspailia spp.

Whole dried specimen



- The original kitchen sponge!

Pūngorongoru | Finger sponge

Raspailia spp.

Habitat

Found in open rock reef flats.

Diet

Filters food from the seawater that flows through its pores and channels.

Predators

Sea slugs and turtles. Some sponges contain toxins and glass-like spicules to stop animals eating them.

Human impact

Sea sponges are better at keeping water in than the sponges in your kitchen. They are the original dishwashing tool!

DID YOU KNOW?

Sponges are not plants; they are classified as an animal without a brain or nervous system

QUESTION

The holes and spaces inside a sponge can be protective spaces for smaller animals. Are there other species in the kete that can do this as well?

Papatua | Chiton

Syphorochiton spp.

Shell



- Like little shields on rocks!

Papatua | Chiton

Syphorochiton spp.

Habitat

Common under stones in the rocky shore.

Diet

Grazes on algae that grow on rocks.

Predators

Sea stars, crabs, fish and sometimes seagulls.

Human impact

Climate change creates more storms than usual.

Extra wave action may impact the way chitons cling onto rocks.

DID YOU KNOW?

Even without eyes, chitons manage to make their way back to their 'home' spot after grazing at night. Scientists don't exactly know how they do this, but recent experiments suggest they respond to magnetism because their metallic teeth leave traces of iron in rocks, therefore they have a trail to follow.

Tipa | Scallop

Pecten novaezelandiae

Shell



- Tipa flap their shells together to swim away from predators

Tipa | Scallop

Pecten novaezelandiae

Habitat

Muddy and sandy shores.

Diet

Filter feeds on plankton that gets trapped by their sticky gills.

Predators

Sea stars, crayfish, crabs and fishes.

Human impact

A delicacy in fine dining meals.

Info

Scallops are both male and female. They have two sets of reproductive organs: the white part is male and the orange is female.

QUESTION

Most scallops are caught by a fishing technique called dredging which scoops out massive chunks of sea floor. What effect do you think this might have on underwater environments?

Tuatua

Paphies subtriangulata

Shell



- Catch me if you can...I'd rather you didn't

Tuatua

Paphies subtriangulata

Habitat

Buried in beaches with fine sand.

Diet

Filters seawater through gills to pick up food.

Predators

Sea stars, snapper and some sea gulls.

Human impact

Tuatua are commonly harvested for kaimoana – but be aware of the limits in your area for collecting them.

DID YOU KNOW?

To escape capture, tuatua can burrow quite fast and even squirt water at you!

Pūpū terakihi | Paper nautilus

Argonauta nodosus

Brooding shell
(3D printed)



- Inside lives a small octopus!

Pūpū terakihi | Paper nautilus

Argonauta nodosus

Habitat

Floats on ocean surfaces.

Diet

Carnivorous. Captures prey with its tentacles, then stabs it injecting poison.

Predators

Sharks, large fish, turtles, octopuses.

Human impact

In the early 1800s, French scientist Jeannette Villepreux-Power was the first person to experiment on paper nautilus' and while doing this she invented the modern aquarium.

Info

The shell is also a floatation device. The animal pumps water in and out to let it move up and down the water column.

DID YOU KNOW?

Just before Captain Cook's arrival in Aotearoa a mass stranding of pūpū tarakihi occurred on Tāmaki's shores. Titahi, a seer from Ōrākei, prophesised a 'mighty wind' from the north causing the stranding which would eventually cause major change to the Waitematā.

Tītī wainui | Fairy prion

Pachyptila turtur

Wing



- Looks delicate, but is strong enough to dig big holes in the ground to live in

Titī wainui | Fairy prion

Pachyptila turtur

Habitat

Live on offshore islands. Excavates burrows in the ground to nest.

Diet

Shallow dives into the water to scoop out krill and small animals.

Predators

Used to live on the mainland until mammalian predators (cats, rats and stoats) were introduced by humans. Natural predators include other birds such as skuas and harriers.

Info

Largest breeding colony is on Stephens island in the Cook Strait where tuatara eat up to 25% of their eggs.

QUESTION

Titī wainui are considered a keystone species.

Their burrows create safe, sheltered and humid homes for lizards, tuatara and insects. Their droppings also create fertile rich soil for plants.

Can you think of any other keystone species in the box, or in Aotearoa?

Tītī | Short tailed shearwater

Puffinus tenuirostris

Wing



- Perfect fliers but clumsy walkers (more like waddlers)

Tītī | Short tailed shearwater

Puffinus tenuirostris

Habitat

They migrate all year round. They can be found flying through NZ from October – January, and breed in Australia. Sometimes they travel 15 000 km each way to Alaska and back.

Diet

Dive up to 10m in the water to catch fish. Will feed in large flocks or with dolphins when around schooling fish.

Human impact

Although there are massive populations, they remain vulnerable. Habitat destruction, introduced predators and bycatch are major threats to shearwater.

Info

Shearwaters are excellent swimmers and perfect oceanic gliders, but with legs placed far back on their body they waddle very clumsily on land.

QUESTION

Consider an animal that travels so far for part of its life and the human-made obstacles it encounters along the way. What would you do to prevent any disruption to this animals journey?

Mako shark

Isurus oxyrinchus

Teeth



- The fastest swimming shark!

Mako shark

Isurus oxyrinchus

Habitat

Found worldwide temperate to tropical waters including NZ.

Diet

These sharks are fast hunters. They can eat squid, swordfish, tuna and many other prey.

Predators

Humans used to catch mako sharks for food. They are now threatened so its not recommended to fish for them.

Human impact

For Māori, shark fishing was a summertime activity. In the Manukau, inland Māori from Waikato would arrive by canoe at Awhitu to spend the summer catching and drying great quantities of shark. Flesh, oil and eggs were a delicacy eaten raw.

PŪRĀKAU

A taniwha named Te Mokai A Kahu lived around the Wai Te Mata rock, in the Waitematā Harbour. Once each year he swam around his rock as a signal that the shark-fishing season could begin. In a battle, Ngā Puhi from the north damaged his mauri (life force). Te Mokai A Kahu was never seen again, but some say it lurks in the deep channel off Kauri Point, where sharks can still be caught.

Maki, kera wēra | Orca whale

Orcinus orca

Tooth (3D printed)



- Family is important for this mammal

Maki, kera wēra | Orca whale

Orcinus orca

Habitat

Open ocean & coastal waters. Often pass through Auckland when travelling.

Diet

Fish and squid, also known to attack sharks.

Predators

None, orca are apex predators.

Human impact

They are likely to get a build-up of human-made toxins via the food web which can pose a threat to their health.

Info

Despite having 'whale' in their name, orcas are the largest members of the dolphin family. Highly intelligent, they are known to share food, mourn and care for other orca's calves.

QUESTION

Orca live all over the planet and, just like humans, different populations of orca have been found to have their own cultures due to differences in diet, behaviour and vocalisations. How do you think scientists observe this?

Kotakota ngū | Rams horn squid

Spirula spirula

Shell



- It's a small squid. The shell sits inside the body and is used to help it float.

Kotakota ngū | Rams horn squid

Spirula spirula

Habitat

Lives in the open ocean and are very rarely seen alive.

Diet

Assumed to eat small fish and crustaceans.

Predators

Oceanic seabirds and fish.

Human impact

Even though its hard to find them alive, you can easily find their shells on beaches across Auckland.

Info

Unlike most animals the ram's horn squid migrates every day! Their migration is vertical; by day they live 500-1000m below the surface and migrate up to 300m every night to feed. Thats a long way for a creature this small.

QUESTIONS

Ram's horns are sometimes called tail-light squid because they have a bioluminescent area on its behind which gives off a green light. Can you think of any other animals that are bioluminescent? What do you think causes it and why would animals have this fascinating ability?

Parāoa | Sperm whale

Physeter macrocephalus

Tooth & ear (3D printed)



- Has the biggest brain of all animals!

Parāoa | Sperm whale

Physeter macrocephalus

Habitat

Found worldwide, including Auckland. Seen close to shore where deep water meets land.

Diet

Feeds mainly on squid. A 12m long squid was once found in the stomach of a stranded whale!

Predators

Calves and weak adults can be hunted by pods of orca.

Human impact

In the 18th and 19th centuries, whalers collected ambergris, a waxy substance formed in the intestine of sperm whales. It was sold at high prices because it was used to create luxurious smelling perfumes.

QUESTION

Here we have a sperm whale's ear bone, but where are their ears? Their auditory organs are all internal. Unlike us, their ear bones are separate from their skull, which allows them to pinpoint where sound is coming from underwater.

Pāpaka ura | Red rock crab

Guinusia chabrus

Exoskeleton



- Watch out for them between rock ledges!

Pāpaka ura | Red rock crab

Guinusia chabrus

Habitat

Rocky shore between rocks.

Diet

Opportunistic. Eats molluscs, some algae, and dead animals.

Predators

An octopus's favourite meal.

Info

They mate when the female is ready to moult. The male guards her while she takes off her old carapace (shell) and waits for the new exoskeleton to harden. Eggs are kept safe under the new exoskeleton until she is ready to lay them.

QUESTION

Many invertebrates, such as the red rock crab, have an exoskeleton which they need to moult several times in their life as they get bigger. Whats the difference between invertebrates and vertebrates? Which one of these do we belong to?

Rimurimu | Kelp

Ecklonia radiata

Holdfast



- Like an apartment building for little animals

Rimurimu | Kelp

Ecklonia radiata

Habitat

Kelp attaches to rock where it can photosynthesise.

Diet

Sunlight.

Predators

Kina and other herbivores.

Human Impact

We farm kelp and other seaweeds for a variety of products. For example, toothpaste.

Info

It's not just the kelp leaves that provide shelter for animals, their holdfasts also provide protection and homes to tiny animals.

QUESTION

How do you think holdfasts of kelp are the same as the roots of land plants? How do you think they are different?

Matau | Fishing hooks

Museum replicas



- The first fish hooks made in Aotearoa

Matau | Fishing hooks

Manufacture

Māori are fishing superstars! Their knowledge of fish led to the development and manufacture of a wide variety of matau.

Materials

There are two main types of matau: early one-piece hooks (made from bone or shell). And later, hooks made from a combination of bone, wood or shell.

DID YOU KNOW?

Matau are significant symbols in many Pacific cultures and are often carved into jewellery. Try find Maui's magic fishhook in the film Moana!

Sometimes you will see people wearing fish hook shaped necklaces called 'hei matau'.

In matakauranga Māori, he matau reflects how Te Ika A Māui (the North Island), once a huge fish, was caught by the great mariner Māui using only a hook made from his mother's jawbone.

Tāmure | Snapper

Chrysophrys auratus

Skeleton and Jaw



- Young snapper love to live in mangroves

Tāmure | Snapper

Chrysophrys auratus

Habitat

Anywhere between shallow estuaries to a depth of 200m.

Diet

Carnivorous and opportunistic. Auckland snapper love to eat kina.

Predators

Larger fish and sharks.

Human impact

One of New Zealand's favourite fish to catch and eat.

Info

Snapper are known for their big canine teeth, hence the name 'snapper'. Don't make the mistake of putting your finger in an adult snapper's mouth – it can literally be crushed!

QUESTION

Snapper are one of New Zealand's favourite fish to catch and eat so some restrictions and rules have been put in place to help protect them. What do you think some of these rules could be?

Paratiki | Plastic pieces

This is not an animal

- Pieces of plastic found on Devonport Beach

Paratiki | Plastic pieces

This is not an animal

Habitat

No natural habitat, but somehow found everywhere.
Migrates large distances across oceans.

Predators

No nutritional value but is eaten by many animals:
whales, turtles, fish, seabirds, dolphins, crabs, stingrays
etc.

Human impact

We created it.

Info

Most of the plastic picked up from beaches have only
been used once. For example: food wrappers, plastic
bottles and plastic bags.

QUESTION

*Even though we find a lot
of plastic in the ocean, we
make it on land. Can you
draw the journey of a piece
of plastic you have found on
the beach? What can you
do to help prevent plastic
pollution?*

Tiotio | Pink barnacle

Notomegabalanus decorus

Exoskeletons on metal rod



- Barnacles are crustaceans, this means they're closely related to crayfish and crabs

Tiotio | Pink barnacle

Notomegabalanus decorus

Habitat

Adults are sessile (only live on one spot) and mostly live on rocks. However, the larvae do swim about the ocean. They have great listening skills to find members of their species so they can settle down and become adults next to them.

Diet

Filter feed using a fan like appendage that sways in the water.

Predators

Some carnivorous snails can drill into barnacle shells and eat them.

Human impact

Lots of barnacles live on human made objects like this metal rod you see.

DID YOU KNOW?

Barnacles are both male and female

QUESTIONS

Ever seen pictures of barnacles on whales or boats? Why would they have an advantage over their cousins placed on rocks?

Pūpū rore | Arabic volute

Alcithoe arabica

Shell



- The snail living inside is a predator!

Pūpū rore | Arabic volute

Alcithoe arabica

Habitat

Live only in New Zealand. Found around low tide areas in sand and mud.

Diet

Carnivore. This quick-moving predator smothers bivalve molluscs with its large 'foot'.

Human impact

Sought after by shell collectors. This is a cause of decline for many marine creatures with beautiful shells.

DID YOU KNOW?

Most spiralling shells are "right-handed", spiralling clockwise. But some can be left-handed as well, sometimes fetching high prices from collectors

Papatua | Chiton

Eudoxochiton nobilis

Shell



- Shields living on rocks

Papatua | Chiton

Eudoxochiton nobilis

Habitat

Common under stones on the rocky shore.

Diet

Grazes on algae that grow on rocks.

Predators

Sea stars, crabs, fish and sometimes seagulls.

Human impact

Climate change creates more storms. Extra wave action may impact the way chitons cling onto rocks.

DID YOU KNOW?

Even without eyes, chitons manage to make their way back to their 'home' spot after grazing at night. Scientists don't exactly know how they do this, but recent experiments suggest they respond to magnetism because their metallic teeth leave traces of iron in rocks, therefore have a trail to follow

Pekapeka | Comb sea star

Astropecten polyacanthus

Whole dried specimen



- Slow moving predators

Pekapeka | Comb sea star

Astropecten polyacanthus

Habitat

Spends most of its time buried in the seabed.

Diet

Eats molluscs and scrap food that makes it way to the seafloor.

Predators

Sometimes sharks, stingrays and other sea stars.

Human impact

You will find comb stars in aquariums because they are good at cleaning up.

Info

They contain tetrodotoxin, the same deadly poison that puffer fish (fugu) have. This toxin can occasionally make its way through the food chain to humans!

DID YOU KNOW?

Scientists find it hard to say 'starfish' because they're not actually fish, they are invertebrates related to kina

Pekapeka | Carpet shark

Cephaloscyllium isabellum

Egg case



- Some sharks lay eggs, but others can give birth to live shark pups!

Pekapeka | Carpet shark

Cephaloscyllium isabellum

Habitat

Near the seafloor, mostly in shallow waters.

Diet

They hunt at night time, mostly for invertebrates but sometimes fish.

Predators

Larger sharks.

Human impact

Usually caught by accident and released, not often eaten.

DID YOU KNOW?

Their egg cases are sometimes called mermaid's purses because of their unique shape! These sharks can inflate themselves by sucking up water to appear bigger and scare predators away.

Takarape | Sunset shell

Gari spp.

Shell



- Can you paint the sunset like this shell can?

Takarape | Sunset shell

Gari spp.

Habitat

In soft sand below high tide. They bury down about 20cm deep.

Diet

Filters plankton out of the water.

Predators

Predators for molluscs with shells include snapper, carpet sharks, and even other molluscs like the Arabic volute! Check in the kete for specimens of these species too.

DID YOU KNOW?

They are nicknamed sunset shells for their pink and orange rays and bands across the shell

Pararā | Broad billed prion

Pachyptila vittata

Two skulls



- Uses a wide beak to scoop up food from water

Pararā | Broad billed prion

Pachyptila vittata

Habitat

In NZ waters throughout the year. Breeds in colonies on offshore predator free islands.

Diet

Like baleen whales, these birds have comb-like filters around the edge of their beak to sieve out food from seawater.

Human impact

Local extinctions have occurred on islands where humans have introduced predators like cats, stoats and rats.

DID YOU KNOW?

Wild weather can have a huge impact on seabirds. In 2011, a storm in Southland killed around 250,000 broad-billed prions!

QUESTION

As climate change progresses, one of the impacts will be more changeable weather and increased storms. How do you think this will affect the broad billed prion and other creatures in this box?

Tītī wainui | Fairy prion

Pachyptila turtur

This is its wing and skull



- Looks delicate, but is strong enough to dig big holes in the ground to live in

Tītī wainui | Fairy prion

Pachyptila turtur

Habitat

Live on offshore islands. Excavates own burrows in the ground to nest.

Diet

Shallow dives into the water to scoop out krill and small animals.

Predators

Used to live on the mainland until mammalian predators (cats, rats, stoats) were introduced by humans. Natural predators are other birds such as skuas and harriers.

DID YOU KNOW?

Largest breeding colony is on Stephens island in the Cook Strait where tuatara eat up to 25% of their eggs

QUESTION

Tītī wainui are considered a keystone species. Their burrows create safe, sheltered and humid homes for lizards, tuatara and insects. Their droppings also create highly fertile soil for plants. Can you think of any other keystone species in the box, or in Aotearoa?

Kōpūtōtara | Porcupine fish

Allomycterus pilatus

Spikes/spines



- The fish that blows up like a balloon!

Kōpūtōtara | Porcupine fish

Allomycterus pilatus

Habitat

Shallow reefs.

Diet

Carnivorous, uses powerful jaws to crush crabs, urchins and seashells.

Human impact

A delicacy in Japan, also known as fugu, people take a chance eating this toxic fish and hoping not to get poisoned. Eek!

QUESTION

When threatened it can inflate itself with water, turning into a spiky balloon to discourage any potential predator. Which other animal in the kete inflates itself with water?

Papaka huna | Camouflage crab

Notomithrax spp.

Exoskeleton



- Puts seaweed on its back to hide!

Papaka huna | Camouflage crab

Notomithrax spp.

Habitat

Rocky shore. Lives under rocks and among seaweed.

Diet

Scavenges on dead organisms or anything slow enough for them to catch.

Predators

Octopus and fishes.

DID YOU KNOW?

These crabs hide by attaching things like seaweed or sponges to their shell using Velcro-like hooked hairs. When they moult, they sometimes transfer their decorations to their new shell! The algae and sponges that grow on their back can be little habitats for smaller creatures. They could also have toxins which provide the crab extra defense!

Tuatini | Sevengill shark

Notorynchus cepedianus

Teeth from lower jaw



- Related to sharks living when dinosaurs were around!

Tuatini | Sevengill shark

Notorynchus cepedianus

Habitat

In temperate areas near coastlines around the world.

Diet

Can put on a burst of speed to catch almost any kind of prey: fish, other sharks, seals etc.

Human impact

Often fished for meat, fins, skin, and liver oil. People also fish them for sport and competitions.

DID YOU KNOW?

This is an ancient lineage of sharks with seven gill slits instead of five, and while the upper jaw has pointed teeth the lower jaw is filled with razor-sharp sawblade-shaped teeth that can easily rip through the flesh of its prey

Kina | Sea urchin

Evechinus chloroticus

Outer shell & Aristotle's
lantern mouthpiece



- Loves to eat seaweed
- Lives in fear of large snapper jaws!

Kina | Sea urchin

Evechinus chloroticus

Habitat

Rocky shore to 60m deep.

Diet

Nocturnal grazer that feeds on seaweed and algae. A grinding mill, called an Aristotle's lantern and made of five teeth, allows for chewing of tough plant material.

Predators

Snapper, crayfish and other large fish.

Human impact

Humans have been harvesting them for hundreds of years for food.

PROBLEM

Kina populations are increasing, this means they are going to eat lots of seaweed that young fish like to hide in. How do you think we are able to control this?

Pūngorongoru | Finger sponge

Raspailia spp.

Whole dried specimen



- The original kitchen sponge!

Pūngorongoru | Finger sponge

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Found in open rock reef flats .

Diet

Filters food from the seawater that flows through its pores and channels.

Predators

Sea slugs and turtles. Some sponges contain toxins and glass-like spicules to stop animals eating them.

Human impact

Sea sponges are better at keeping water in than the sponges in your kitchen. They are the original dishwashing tool!

DID YOU KNOW?

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QUESTION

The holes and spaces inside a sponge can be protective spaces for smaller animals. Are there other species in the kete that can do this as well?

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Spirula spirula

Shell



- It's a small squid. The shell sits inside the body and is used to help it float.

Kotakota ngū | Rams horn squid

Spirula spirula

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Lives in the open ocean and are very rarely seen alive.

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Predators

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Human impact

Even though its hard to find them alive, you can easily find their shells on beaches across Auckland.

Info

Unlike most animals the ram's horn squid migrates every day! Their migration is vertical; by day they live 500-1000m below the surface and migrate up to 300m every night to feed. Thats a long way for a creature this small.

QUESTIONS

Ram's horns are sometimes called tail-light squid because they have a bioluminescent area on its behind which gives off a green light. Can you think of any other animals that are bioluminescent? What do you think causes it and why would animals have this fascinating ability?

Tāmure | Snapper

Chrysophrys auratus

Skeleton and Jaw



- Young snapper love to live in mangroves

Tāmaki
Paenga Hira
Auckland
War Memorial
Museum

AMM

Tāmure | Snapper

Chrysophrys auratus

Habitat

Anywhere between shallow estuaries to a depth of 200m.

Diet

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Predators

Larger fish and sharks.

Human impact

One of New Zealand's favourite fish to catch and eat.

Info

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QUESTION

Snapper are one of New Zealand's favourite fish to catch and eat so some restrictions and rules have been put in place to help protect them. What do you think some of these rules could be?

Pūpū terakihi | Paper nautilus

Argonauta nodosus

Brooding shell
(3D printed)



- Inside lives a small octopus!

Pūpū terakihi | Paper nautilus

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Habitat

Floats on ocean surfaces.

Diet

Carnivorous. Captures prey with its tentacles, then stabs it injecting poison.

Predators

Sharks, large fish, turtles, octopuses.

Human impact

In the early 1800s, French scientist Jeannette Villepreux-Power was the first person to experiment on paper nautilus' and while doing this she invented the modern aquarium.

Info

The shell is also a floatation device. The animal pumps water in and out to let it move up and down the water column.

DID YOU KNOW?

Just before Captain Cook's arrival in Aotearoa a mass stranding of pūpū tarakihi occurred on Tāmaki's shores. Titahi, a seer from Ōrākei, prophesied a 'mighty wind' from the north causing the stranding which would eventually cause major change to the Waitematā.

Matau | Fishing hooks

Museum replicas



- The first fish hooks made in Aotearoa

Matau | Fishing hooks

Manufacture

Māori are fishing superstars! Their knowledge of fish led to the development and manufacture of a wide variety of matau.

Materials

There are two main types of matau: early one-piece hooks (made from bone or shell). And later, hooks made from a combination of bone, wood or shell.

DID YOU KNOW?

Matau are significant symbols in many Pacific cultures and are often carved into jewellery. Try find Maui's magic fishhook in the film Moana!

Sometimes you will see people wearing fish hook shaped necklaces called 'hei matau'.

In mātāuranga Māori, he matau reflects how Te Ika A Māui (the North Island), once a huge fish, was caught by the great mariner Māui using only a hook made from his mother's jawbone.

Toheroa

Paphies ventricosa

Shell



Toheroa

Paphies ventricosa

Habitat

Lives buried about 15cm below the surface in fine clean sand. Found mostly on the west coast.

Diet

Filters seawater through gills to pick up food.

Predators

Sea stars, snapper, some seagulls, humans.

Human impact

Humans ate them, they were one of the most popular shellfish in the 1950s and 60s. Canned toheroa soup was very common for family dinners.

Info

They migrate and may move more than 30m in one night.

QUESTION

It is illegal to catch toheroa now, in fact you could be fined up to \$20,000 if you get caught! Why do you think the rules are so strict

Maki, kera wēra | Orca whale

Orcinus orca

Tooth (3D printed)



- Family is important for this mammal

Maki, kera wēra | Orca whale

Orcinus orca

Habitat

Open ocean & coastal waters. Often pass through Auckland when travelling.

Diet

Fish and squid, also known to attack sharks.

Predators

None, orca are apex predators.

Human impact

They are likely to get a build-up of human-made toxins via the food web which can pose a threat to their health.

Info

Despite having 'whale' in their name, orcas are the largest members of the dolphin family. Highly intelligent, they are known to share food, mourn and care for other orca's calves.

QUESTION

Orca live all over the planet and, just like humans, different populations of orca have been found to have their own cultures due to differences in diet, behaviour and vocalisations. How do you think scientists observe this?

Parāoa | Sperm whale

Physeter macrocephalus

Tooth & ear (3D printed)



- Has the biggest brain of all animals!

Parāoa | Sperm whale

Physeter macrocephalus

Habitat

Found worldwide, including Auckland. Seen close to shore where deep water meets land.

Diet

Feeds mainly on squid. A 12m long squid was once found in the stomach of a stranded whale!

Predators

Calves and weak adults can be hunted by pods of orca.

Human impact

In the 18th and 19th centuries, whalers collected ambergris, a waxy substance formed in the intestine of sperm whales. It was sold at high prices because it was used to create luxurious smelling perfumes.

QUESTION

Here we have a sperm whale's ear bone, but where are their ears? Their auditory organs are all internal. Unlike us, their ear bones are separate from their skull, which allows them to pinpoint where sound is coming from underwater.

Rimurimu | Kelp

Ecklonia radiata

Holdfast



- Like an apartment building for little animals

Rimurimu | Kelp

Ecklonia radiata

Habitat

Kelp attaches to rock where it can photosynthesise.

Diet

Sunlight

Predators

Kina and other herbivores.

Human Impact

We farm kelp and other seaweeds for a variety of products. For example, toothpaste.

Info

It's not just the kelp leaves that provide shelter for animals, their holdfasts also provide protection and homes to tiny animals.

QUESTION

How do you think holdfasts of kelp are the same as the roots of land plants? How do you think they are different?

Tuatua

Paphies subtriangulata

Shell



- Catch me if you can...I'd rather you didn't

Tuatua

Paphies subtriangulata

Habitat

Buried in beaches with fine sand.

Diet

Filters seawater through gills to pick up food.

Predators

Sea stars, snapper and some sea gulls.

Human impact

Tuatua are commonly harvested for kaimoana – but be aware of the limits in your area for collecting them.

DID YOU KNOW?

To escape capture, tuatua can burrow quite fast and even squirt water at you!

Rimurimu | Red seaweed

Rhodophyta spp.

Dried specimen



- Seaweeds can be brown, green or red

Rimurimu | Red seaweed

Rhodophyta spp.

Habitat

Attaches to rock where it can photosynthesise.

Diet

Sunlight

Predators

Kina, some hermit crabs and other herbivores.

Human Impact

Seaweed absorbs many good minerals from the ocean and are thought to be the single most nutritious food you can eat.

Info

Red algae absorbs light easier than green seaweeds, this means it can grow in much deeper water.