

Estuaries

by Ursula Cochran



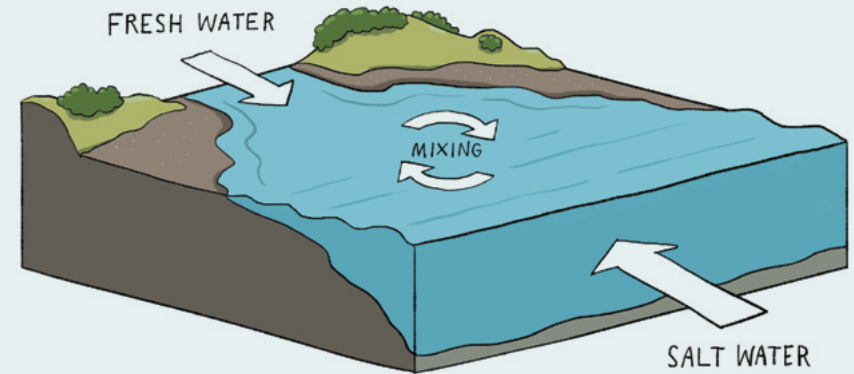
Would you like to live near a watery wasteland full of rubbish? Or would you rather live near a safe **haven** full of birds, fish, trees, and plants?

Estuaries can become either of these. That's why kaitiakitanga, or protection, of estuaries is so important. If we don't look after them, they can become unhealthy. And, as you'll find out, healthy estuaries are better for everyone!



What is an estuary?

An estuary is a place where fresh water from a river or stream mixes with salt water from the sea. Estuaries are different from lakes and rivers because they have tides and salty water.



What do estuaries look like?

There are more than three hundred estuaries in Aotearoa New Zealand. If you live near the coast, there is probably an estuary close by – like a harbour, river mouth, inlet, or lagoon. If it has a mix of fresh water and salt water, it's an estuary.



A giant mixing bowl

An estuary is like a giant mixing bowl. Ingredients like **sediment** and **nutrients** from the land and rivers mix with sea water. An estuary can be full of water at high tide and almost empty at low tide. Some, like Tauranga Harbour, are huge.

An estuary can have many different **habitats** where plants, fish, and birds live, feed, and **breed**. These can be mudflats, inlets, ponds, and **salt marshes**. Each plant or animal can find the right food and the type of environment it likes to live in.



Mud crabs live in mudflats, where they can find food.



Estuary habitats

If you walk along the edge of an estuary, you'll pass many different habitats. Near the sea, you'll see plants and animals that like salty water and sand. You might see birds like gulls and terns. When you walk inland, you'll see plants and animals that like fresh water and soil. Here you might see rushes and flax growing by the water, tuna (eels) in a stream, and birds like tūi and kōtare (kingfishers) in trees or bushes by the estuary.

Life in an estuary

Estuaries are popular places. Tiny living things called plankton float in the water, and sea worms hide in the mud. Shellfish cling to the rocks, and fish and birds visit to feed. There is life in every part of an estuary, and every living thing is suited to its habitat.

Plants

Plants that grow in estuaries are suited to living in salty water that comes in and goes out with the tides.

- Mānawa (mangrove) is a tree that grows in salt water. Its roots have breathing holes, which stick out of the mud so the tree can get air – just like we use snorkels to breathe under water.
- Ureure (glasswort) is a plant that stores salt and water inside its short, thick stems. The salt stops the water being washed out of the stem at high tide.
- Eel grass can live almost totally under the water; it takes in nutrients through its leaves and roots.

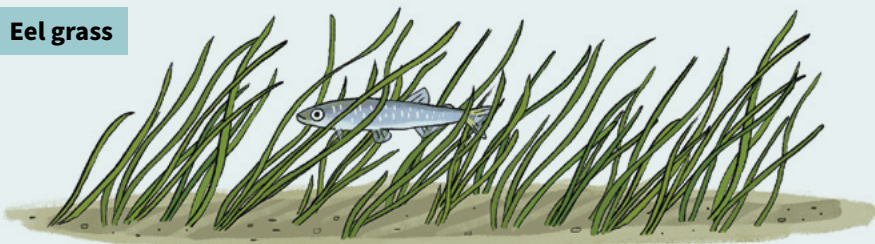


Mānawa



Ureure

Eel grass

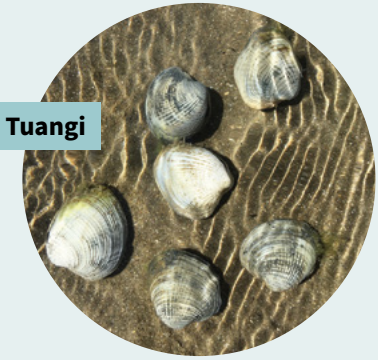


Animals

Like the plants, the animals that live in an estuary are **adapted** to living there.

- Tuangi (cockles) need salty water to live. However, these shellfish can live in places with less salty water by not growing as big. That's why in an estuary you often find the biggest cockles close to the sea.
- Birds like oystercatchers, stilts, and plovers wade in shallow water to find food. Many wading birds can't swim, but they have long legs for walking in the water. They use their long beaks to dig in the mud for shellfish and worms.
- Pātiki (flounder) have adapted to hide from their prey and from predators. Because they are flat fish, they can lie on the estuary floor without being seen. They also hide by changing the colour of their skin to be like the sand or mud.

Tuangi



Pātiki



Feeding and resting in estuaries

Many birds that migrate from place to place stop at estuaries to rest and find food. Every year, kuaka (godwits) fly non-stop for eight days from Alaska to Aotearoa New Zealand. That's a distance of 12,000 kilometres! They spend the summer feeding in our estuaries, mostly on sea worms and crabs. It must be well known that there is great kai in the estuaries of Aotearoa!



Why are estuaries important?

Healthy estuaries keep our oceans, rivers, and streams clean. Wetlands and trees like mānawa remove pollution and sediment from the water. The roots of the mānawa help stop the land from eroding or wearing away. Estuaries can also act as a **barrier** by protecting the land from storms and floods.

Estuaries are important to people. They provide food, water, and resources. Just like birds, we can get a good feed from estuaries. We gather pipi, tuangi, and īnanga (whitebait). A lot of fish that we catch in the sea breed in estuaries.

Many towns and cities in New Zealand are near estuaries as they are good natural harbours. In the past, people often used boats to get around and carry goods. It was important to have a safe place where the boats could land.



The calm waters of an estuary are a great place to paddle.

How can we protect estuaries?

People used to fill in estuaries to build houses or make farmland. Some estuaries were used for rubbish dumps. Many became polluted with plastics, waste, and chemicals from factories. Others disappeared completely. So we need to protect the estuaries that we still have.

Estuaries have always been valuable to Māori – as places to live and gather food and plants. Māori sometimes place rāhui on estuaries to stop people from gathering food. This helps to **sustain** life there.

There are many ways we can act as kaitiaki and look after estuaries. We can plant trees and marsh plants. We can keep pollution out of the water and remove weeds and rubbish.

People can **monitor** the health of an estuary. They can measure changes in the water to see if there are any problems. The students at Maungatapu School in Tauranga are monitoring their local estuary – you can read about their work on page 12.

If you would like to help take care of an estuary, the Department of Conservation has information about protecting estuaries and what schools can do to help. Let's make sure our estuaries remain havens for the amazing variety of plants and animals that live there.



Glossary

adapted: became suited to new conditions

barrier: an obstacle that blocks the path of something

breed: to produce young

habitats: places where animals or plants are suited to live

haven: a place that provides shelter and protection

monitor: observe or watch over a period of time

nutrients: substances that help keep living things healthy

salt marshes: grasslands that are often flooded with sea water

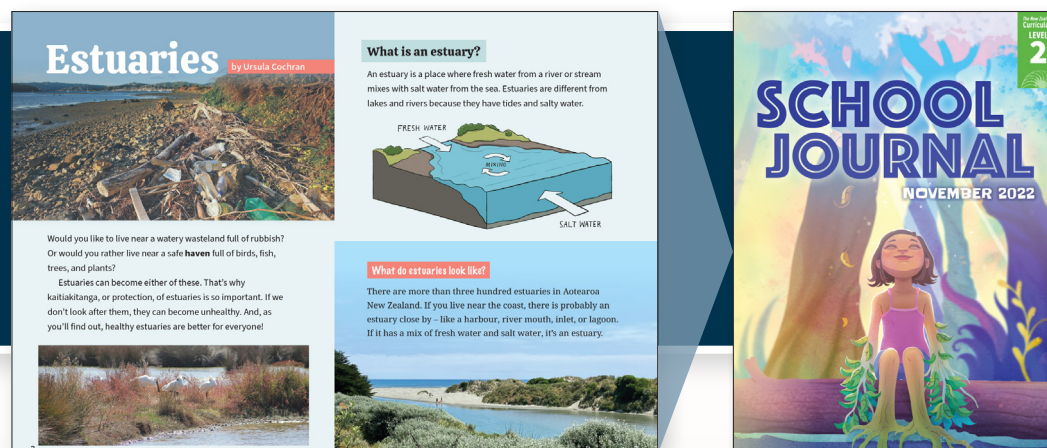
sediment: tiny pieces of soil and sand

sustain: maintain or protect



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