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TAPPED IN

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Environmental care manager Sanjay Kumarasingham spots a seal frolicking on the rocks along the Manukau Harbour foreshore.

Revitalising the Manukau Harbour

Today, people visiting the Manukau Harbour can enjoy splashing about in its shallow waters, fishing off the rocks and watching its diverse birdlife. But this wasn't always the case.

For over 100 years, communities dotted around its foreshore released untreated wastewater directly into the harbour. The situation grew worse as our city grew with meat works, rubbish dumps, phosphate fertiliser works, an abattoir and numerous other factories adding their waste too. These discharges had a catastrophic ecological impact on the Māngere Inlet, causing fish species such as mullet to die out and the mudflats to release dangerous fumes.

By 1956, around 25 million litres of trade waste and 675,000 litres of wastewater were spilling into the harbour every day. In response to this growing problem, the Manukau Sewage Purification Works was built, opening in 1960. It treated trade waste and wastewater using 515 hectares of oxidation ponds.

The plant was the biggest of its kind in the world when it was built and it greatly improved the health of the Māngere Inlet and harbour. Its oxidation ponds covered the area between the mainland and Puketutu Island.

Thirty years on, further upgrades were called for. The oxidation ponds had delivered significant environmental improvements; however, they seriously impacted those living nearby, creating unpleasant odours and swarms of small insects. Listening to the public's concerns, Watercare undertook Project Manukau between 1998 and 2005, which is the largest coastal rehabilitation project in New Zealand history. It involved removing the ponds, restoring the harbour and upgrading the Māngere Wastewater Treatment Plant. Its advanced processes remove more nutrients such as nitrogen and phosphorus and deliver a 10,000-fold reduction in pathogens. This helps to protect the harbour and the wildlife that make it their home.

Today, the harbour is increasingly becoming a regional treasure. Turn the page to read about the Watercare Coastal Walkway, which forms part of Te Araroa – New Zealand's trail from Cape Reinga to Bluff.



The old oxidation ponds covered a 515-hectare area between the foreshore in Mangere and Puketutu Island.



Flock to the Watercare Coastal Walkway this summer

With summer stretching out ahead of us, the longer days and warmer weather make it the perfect time to visit the Watercare Coastal Walkway.

The seven-kilometre track that runs along the Manukau Harbour foreshore between Ambury Regional Park and Otuataua Stonefields is perfect for walking, cycling and birdwatching. It was created during New Zealand's largest coastal rehabilitation project which saw the removal of 515 hectares of wastewater oxidation ponds and the construction of 13 kilometres of beaches. At the time, Watercare teamed up with local community groups to plant more than 270,000 native trees along the tracks.

As well as featuring native planting and harbour views, the coastal walkway is a home away from home for thousands of migratory wading bird species. On average, more than 30,000 wading birds feed on the harbour's mudflats each day.

It's important for the birds to have a safe place to roost between the tides. They used to use the walls that separated the old oxidation ponds, so when the ponds were decommissioned and returned to the harbour in 2003, we built 'artificial' island roosts to make sure the birds had a place to rest.

A good roost is especially important for species such as the eastern bar-tailed godwits, which fly non-stop from their breeding sites in Alaska – which is the largest, non-stop migration journey of any bird in the world.

For the birds' safety, dogs are not allowed on the coastal walkway. Instead, they are welcome at Greenwood Road Park.

Did you know? In te reo Māori, "manu"

neans bird and "kau" can mean to swim

Neivi Pulu from Viscount Primary School in Māngere with her poster on the Pacific golden plover. Pulu and her classmates took part in our recent Fauna and Flora of the Manukau Harbou Poster Project which encouraged pupils to research local wildlife and share their learning with others. The children created informational posters, 19 of which are on display along the coastal walkway.

Some of the birds and plants you might see along the walkway:

Birds

1 Eastern bar-tailed godwit

- 2 Lesser knot
- Ruddy turnstone Outh Island pied ovstercatcher
- **O** Wrybill: In winter, we host about
- ¼ of the world's population of wrybills. New Zealand dotterel: These birds are

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especially rare, so keep an eye out for them.

Plants Harakeke (flax) Cabbage trees Kõwhai
Kowhai
Kow

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Boisterous pūkeko focus of research

Intelligent, inquisitive and boisterous are three of the words that PhD student Aileen Sweeney uses to describe the personalities of the many pūkeko she studies.

Over the past year, Aileen has been part of a research team from the University of Auckland studying the behaviour and nesting habits of the birds that live along the Watercare Coastal Walkway.

Shiny eggs and baby birds provide plenty of scientific material for her thesis: "One of the most interesting things about pūkeko is that they are co-operative breeders and joint egg layers. Their nests may contain 10 to 15 eggs, with unique patterning on them like dots or stripes. This makes my life so much easier because I know with 90 per cent certainty how many different birds have laid eggs in a particular nest!"

The pūkeko are given individual identification bands so that they can be easily spotted with binoculars. This is vital because, unlike many bird species, male and female pūkeko have identical plumage.

Details such as weight and wing length are recorded, as well as the size of the 'front shield' or red fleshy cap found above the pūkeko's beak. Aileen is exploring the possibility that the size of the shield may relate to dominant



behaviour: "I am wondering if bossy, dominate birds have bigger shields. We're taking blood samples to see if hormone levels differ between the various birds too, to help prove this theory." Aileen is due to complete her study in two years' time.



Sheep munch their way towards sustainability goal

Sixty sheep are helping us towards our sustainability goals, which include reducing emissions and achieving energy neutrality at our Māngere Wastewater Treatment Plant by 2025.

They were recently recruited as four-legged lawn mowers to maintain a 5.5-hectare site to the south of the plant. By not using a tractor to mow the grass, we are cutting down on the amount of fossil fuel we are burning. Also, when sheep munch on the new grass, this allows it to regrow and absorb more carbon dioxide from the atmosphere.

The land will be used to expand the plant in around 13 years' time, to cater for population growth. Between now and then, we will save about \$164,000 in grass maintenance costs.

The sheep are behind new fencing so they won't be able to access any active area of the plant.

Fish tales

You won't see any goldfish in the fish tank at our Māngere Wastewater Treatment Plant.

The tank is home to a shoal of native giant kōkopu. They are part of a group called galaxids, because the black-dotted patterns on their skin look like a galaxy of stars.

While giant kōkopu usually live in rivers, dams and coastal habitats, these ones are thriving in treated wastewater, straight from the plant. It's the same as the treated wastewater that is discharged into the Manukau Harbour, so visitors to the plant can see first-hand how clean and safe it is.





Changes to our customer contract

We would like to let you know that we are updating our customer contract, with the changes taking effect on 1 January 2019.

You can read a summary of these updates, along with the contract, on our website.

Visit www.watercare.co.nz/helpand-advice/customer-contract.

KEEP IN TOUCH

Tapped In is your newsletter. If you would like to talk to us about any stories from this edition or your ideas for future issues, we'd love to hear from you. To get in touch, please email our communications team at communications@ water.co.nz. You can learn more about what we do at www.watercare.co.nz.