

SANCTUARY TO SEA

KIA MAURIORA TE KAIWHARAWHARA



ZEALANDIA™
TE MĀRA A TĀNE

Strategy
2018-2028

He taura whiri kotahi
mai anō te kopunga tai no i te pu au

*From the source to the mouth of the sea
all things are joined together as one*

About this document

The Sanctuary to Sea – Kia Mouriora te Kaiwharawhara Strategy 2018-2028 draft has been developed to provide key overarching objectives and a framework for this unique catchment restoration project for the next 10 years. It has been developed by ZEALANDIA in collaboration with the Kaiwharawhara community and key strategic partners. The document is designed to communicate the scope and focus of the Sanctuary to Sea project for community members and strategic partners so that they can both identify how their projects fit with the broader catchment objectives, and to identify new initiatives that can assist the Wellington community in reaching its restoration goals.

This strategy will be supported operationally by business planning documents within ZEALANDIA and other strategic partners, and through regular meetings of the Sanctuary to Sea Strategy Group.

This strategy sits underneath the ZEALANDIA Te Māra a Tāne Conservation and Restoration Strategy, which highlights the need to look beyond the ZEALANDIA boundary fence to achieve greater things for both nature and people in Wellington and beyond. This project will help achieve multiple ZEALANDIA restoration objectives, including improving fish passage to the sanctuary waterways, and the restoration of the lower lake.

The key groups involved in the strategy development include:

- ZEALANDIA staff*
- Attendees at Sanctuary to Sea community meetings
- Greater Wellington Regional Council*
- Wellington City Council*
- Morphum Environmental Ltd*
- Department of Conservation*
- Taranaki Whānui*
- Wellington Water Ltd*

** denotes organisations involved in the Sanctuary to Sea Strategy Group.*

The next stages for this document include finalisation and confirmation by the Karori Sanctuary Trust Board, the Sanctuary to Sea strategic group, and the community.

This document will support the development of implementation plans which will inform ZEALANDIA and other organisation's business planning. Measurables will be aligned to each individual implementation project.

SANCTUARY TO SEA

KIA MOURIORA TE KAIHARAWHARA

This whole-of-catchment multi-stakeholder restoration initiative aims at restoring freshwater and terrestrial ecosystems in the Kaiharawhara, by doing so enhancing Wellington’s natural capital from “Sanctuary to Sea”.

The Kaiharawhara catchment is unique in Wellington City: it is the largest stream system and only catchment with an open estuary on the Wellington harbour. It has many special values — a rich cultural history, many species of native fish, and the unique ZEALANDIA sanctuary at the headwaters, providing a source of dispersal for unique New Zealand wildlife.

OBJECTIVES 2018-2028



The project objectives will be met through activities across three interconnected dimensions: Te Awa – The Stream, Te Ngahere – The Forest, Nga Tangata – The People. Te Ao Maori will also provide a foundation to our decision-making process.

Partners contribute to each of these dimensions in multiple ways, as outlined in the 10-year priorities.

AWA STREAM	<ul style="list-style-type: none"> Support aquatic native wildlife to thrive in healthy connected habitats Enhance water quality of the Kaiharawhara stream and tributaries Develop accessible, high quality information that supports exceptional decision making and informs the public
NGAHERE FOREST	<ul style="list-style-type: none"> Support the emergence of connected forest remnants and riparian zones Foster terrestrial habitats that provide a safe home for native wildlife Promote healthy urban habitats and ecosystems
TANGATA PEOPLE	<ul style="list-style-type: none"> Start the community on a path to recognise the catchment as a living entity and encourage active involvement in restoration Support mana whenua in reconnecting to the Kaiharawhara catchment Ensure our work is exemplary in the area of catchment restoration and provide leadership in urban sustainability

PARTNERS & STAKEHOLDERS

The project is a collaborative initiative under the leadership of ZEALANDIA.

Partners and stakeholders include the Kaiharawhara community, Department of Conservation, Greater Wellington Regional Council, Morphum Environmental Ltd, Taranaki Whānui Te Upoko o Te Ika, Wellington City Council, and Wellington Water Ltd, researchers, and many more.

100-YEAR VISION (whole catchment)

The mauri of the Kaiharawhara is healed.

In 100 years, the catchment is a healthy freshwater and forested ecosystem in an urban setting, which sustains an abundant native biodiversity and enhances the opportunities for Wellingtonians to have a nature-rich future.

CHALLENGES

Today the Kaiharawhara has undergone significant changes that need to be addressed:

- Degraded water quality from old landfill, aging infrastructure, stormwater, and runoff
- Modified hydrology from increased impervious surfaces
- Major barriers to fish migration
- A high density of animal pests in residential areas
- Kaiharawhara estuary and land development
- Potential future impacts of climate change
- A community that in some respects is highly connected to the land and to nature, and in other respects has experienced a major disconnect.

ACTIONS 2018-2028

- Development of a te Ao Māori foundation for the project
- Investigation and improvement of stormwater infrastructure
- Co-ordinated long-term monitoring of water quality and biodiversity
- Co-ordinated habitat enrichment through, weeding, predator control, planting and species reintroduction when consider appropriate
- Enhancement of habitat connectivity to facilitate movement of wildlife throughout the catchment and beyond
- Interpretation, public awareness and education



The Sanctuary to Sea project

ZEALANDIA's second generation strategy *Living with Nature*, and the draft ZEALANDIA Te Māra a Tāne Conservation and Restoration Strategy both highlight the need for ZEALANDIA to look beyond the fence, both to create exceptional outcomes for our environment and to engage more people in a nature-rich future. The ZEALANDIA Centre for People and Nature has been established to further these goals, and a core project of this Centre is the **Sanctuary to Sea – Kia Mouriora te Kaiwharawhara** project.

The Sanctuary to Sea project is a multi-stakeholder effort that aims to restore the waterways and forests of the Kaiwharawhara water catchment (Map 1), and reconnect people with nature. This project will help make Wellington a world-class nature-rich city, and by doing so facilitate social and financial benefits to the broader community.

The Kaiwharawhara catchment is unique in Wellington City: it is the largest stream system in Wellington City and the only catchment in the city with an open estuary on the Wellington harbour. It has many special values—a rich cultural history, many species of native fish, and the unique ZEALANDIA sanctuary at the headwaters, providing a source of dispersal for unique New Zealand wildlife.

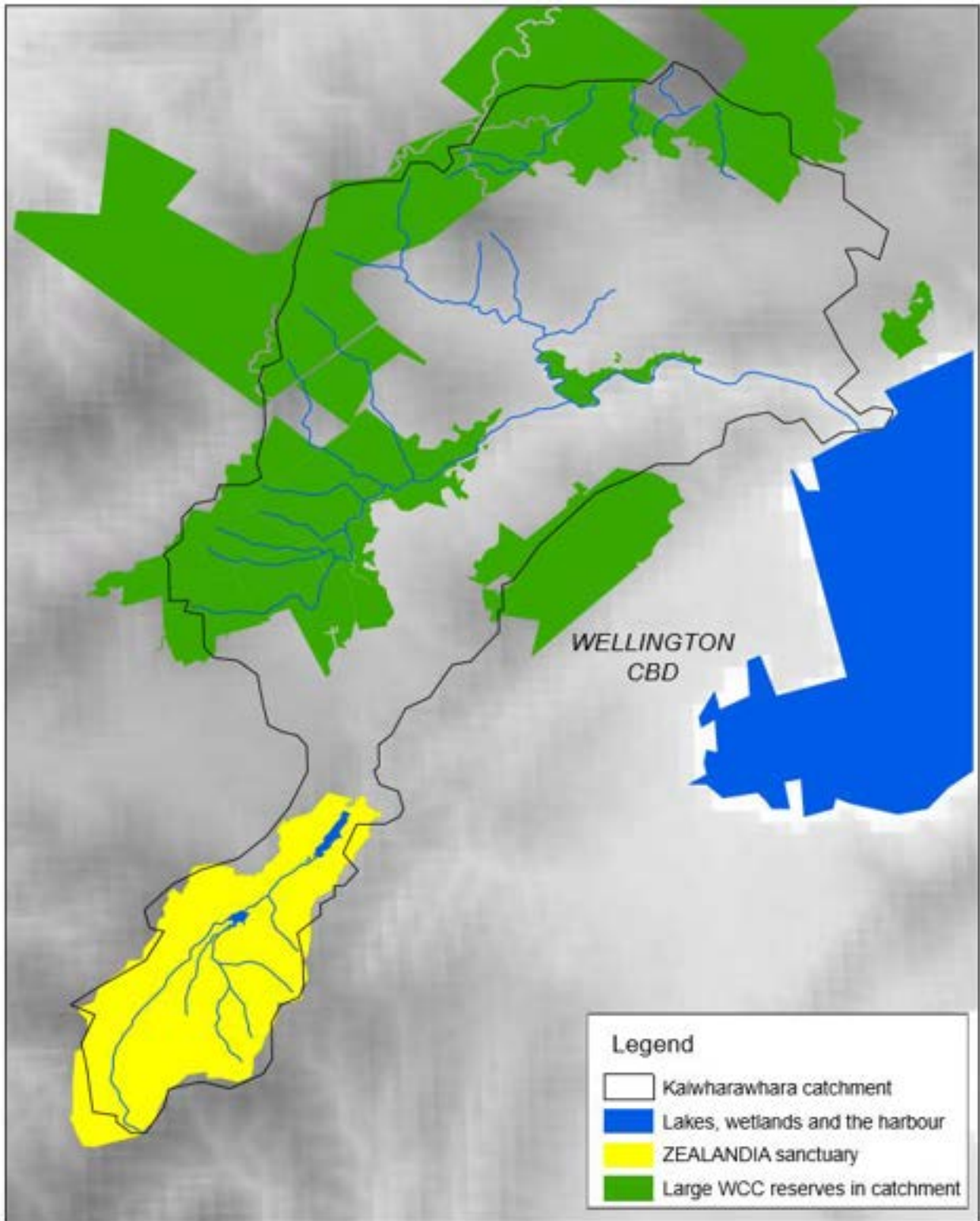
The restoration efforts include the ZEALANDIA sanctuary lakes and waterways. This involves key long-term priority projects including the lower lake restoration, and enhancement of fish passage into and out of the sanctuary.

The Sanctuary to Sea project then looks beyond the fence to create healthy habitats and communities within the entire catchment. This 'beyond the fence' approach is crucial to ensure fish can migrate safely between the estuary and the sanctuary; that there are suitable habitats for birds that disperse down the catchment; and that the people of Wellington can continue reaching for a nature-rich future.

A central goal of the project is to support resilient ecosystems in the face of constant pressures from human development and climate change. It will also support the continued improvement of a unique urban environment where people can reconnect with the natural world, and work together to achieve incredible things. With a 100-year vision, this project builds upon partnerships to restore the mouri of the Kaiwharawhara.

A 100-YEAR VISION:

“The mouri of the Kaiwharawhara is healed. In 100 years, the catchment is a healthy freshwater and forested ecosystem in an urban setting, which sustains an abundant native biodiversity and enhances the opportunities for Wellingtonians to have a nature-rich future”.



Map 1. The Kaiwharawhara catchment including key reserves in the area.

1501



The Kaiwharawhara catchment: our past

One interpretation of the name Kaiwharawhara means 'to feed on the plant' or 'food provided by the plant' - wharawhara or kowharawhara being a name for *Astelia banksii*, an epiphytic plant perched in the branches of trees. The Kaiwharawhara awa has two named headwater tributaries; flowing from Karori is the Te Mahanga, or Te Māhanga, another name for a bird snare; and from the southern slopes of Tarikākā (or Kaukau) is the Korimako, after the Bellbird. The names associated with this catchment all recognize the biodiversity once found within. Before human settlement, the catchment was covered by coastal lowland podocarp-broadleaved forest of emergent matai, miro, rimu and rātā over an understory of kohekohe, rewarewa, hinau and tawa - an ecosystem much like what ZEALANDIA forest would have been. Intact water ways enabled fish and eels to complete their migratory pathways, and large numbers of animals inhabited the landscape.

The ngahere and awa were abundant with mahinga kai species for the many hapu who were living around the harbour. These included tuna from the many streams, harakeke from Motukairangi, and totara from the dense bush further inland. Some areas were also cleared for cultivations but most of the hillside remained clothed in forest until European settlement. The confederated hapū from Taranaki first migrated from their homelands to settle in and around Te Whanganui-a-Tara (Wellington Harbour) between 1824 and 1834 and until 1934. Today, the Port Nicholson Block Settlement Trust is the recognised mandated post settlement authority of the Wellington region representing five Taranaki iwi: Taranaki, Te Atiawa, Ngāti Ruanui, Ngāti Tama, Ngāti Mutunga and other Taranaki iwi, collectively known as Taranaki Whānui Kī Te Upoko o Te Ika (Taranaki Whānui). Taranaki Whānui undertake their responsibility as kaitiaki for the natural, historical and cultural aspects of the land and water, and those of the iwi that inhabited the land before Taranaki Whānui, including Ngai Tara, Ngati Ira, Ngati Kahungunu, Ngai Tahu and Ngati Mamoe. The Kaiwharawhara has both historical and cultural importance to Taranaki Whānui, the gully once heavily forested with villages and small cultivations in the clearings.

With the arrival of European settlers in 1840, the Te Mahanga catchment was farmed and mined for gold, before it became a water reservoir in 1874, and later on decommissioned to become ZEALANDIA ecosanctuary in 1998. Industry developed quickly in the lower Kaiwharawhara with the building of a timber mill in 1842 and later on a tannery (1857-1920s). Building of a slipway for shipping repairs, a railway line and a main road transformed the harbour close to the stream. Both the 1848 and 1855 earthquakes and reclamation works also contributed to the raising and shifting of the shoreline, pushing the stream mouth further out into the harbour.

The Kaiwharawhara catchment: our present, our future

Today the Kaiwharawhara catchment has undergone significant change and the survival of species and ecosystems within is threatened by many challenges. Given this, the restoration of the Kaiwharawhara requires us all to set the bar in urban catchment management in New Zealand and globally.

Some of the challenges that need to be addressed to reach the project vision include:

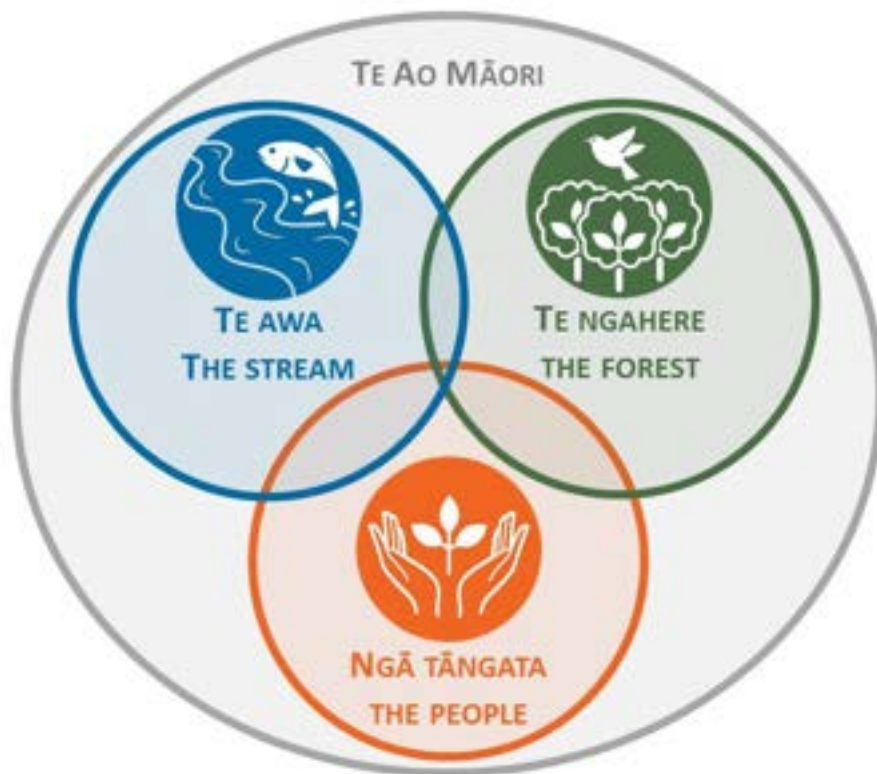
- Degraded water quality from storm water and runoff.
- Modified flow (hydrology) from increased impervious surfaces.
- Fragmented wildlife habitats.
- Leaching from old landfill and aging infrastructures.
- Major barriers to fish migration.
- A high density of animal and plant pests in residential areas.
- Limitations to public access in parts of the stream and the estuary.
- The potential future impacts of climate change.
- A community that in some respects is highly connected to the land and to nature, and in other respects has experienced a major disconnect.

The project is interdisciplinary and addresses multiple dimensions of catchment health. The core 100-year objectives are that:

- The stream and its surroundings are considered a living entity to be cherished and protected.
- The aquatic, riparian and forest ecosystems are healthy.
- Ecologically effective linkages between restoration areas and expanding to residential and industrial zones facilitate the movement of native birds and fish throughout the catchment and provide a home to currently rare and threatened species of plants and animals.
- The project is a meaningful restoration initiative for all Wellingtonians, with strong foundations in te ao Māori.
- The catchment is nature-rich, where people maintain a strong relationship with nature in their own backyard or green space.
- The project demonstrates excellence in catchment restoration and learnings are shared widely.
- The project is innovative and pushes the boundaries of urban sustainability, demonstrating nationally and internationally what can be achieved through a collaborative approach and when key catchment stakeholders care for their own environment.

The project objectives will be met through activity across three dimensions: Te Awa – The Water, Te Ngahere – The Forest, Ngā Tāngata – The People. Te Ao Maori provides a foundation to our decision-making process.

Strategic partners, the community and businesses can contribute to each of these dimensions in multiple ways, as outlined in the 10-year priorities below.





TE AWA THE STREAM

Today

The Kaiwharawhara water catchment is the largest in Wellington City covering an area of 16.7km², and one the last three remaining natural estuaries in Wellington harbour. Aquatic fauna diversity is sporadic in the catchment. Twenty two native species of fish are found in the Wellington region of which thirteen were recorded in the Kaiwharawhara water catchment and only three in ZEALANDIA eco-sanctuary. Inanga spawning is known to occur in the Kaiwharawhara estuary. Although fish distribution in the catchment has been well assessed, little is currently known about fish populations (dynamic and movement), nor the potential impacts of sea level rise on aquatic habitats.

The Kaiwharawhara Stream is contaminated and modified in many parts of the catchment with at least three kilometres of pipes going underneath old landfills and industrialised areas. Water is polluted, the macroinvertebrate community health is degraded and habitat diversity is moderate. At least eighteen fish barriers have been identified in the main Kaiwharawhara Stream, limiting fish movement throughout the catchment. Sustainable management of stormwater is critical to improve water quality and restore aquatic habitats.

Tomorrow

We have three main 100-year goals in this strategy area:

- Aquatic native wildlife thrives in healthy connected habitats
- Water quality of the Kaiwharawhara Stream and tributaries is improved
- Accessible, high quality information supports exceptional decision making that protects water and habitat quality, and informs the public

Our commitments for 2018-2028

To ensure aquatic native wildlife thrives in healthy connected habitats we will:

- Research species diversity, distribution, population and movement.
- Improve freshwater habitats through water quality, flood prevention, erosion control, creation of fish passage and riparian planting.
- Encourage self-reintroduction of species that are extinct in the catchment where possible, or actively reintroduce if necessary, in order to restore the natural balance of aquatic ecosystems.

To enhance water quality of the Kaiwharawhara Stream and tributaries we will:

- Assess stormwater and wastewater infrastructure and encourage its upgrading using the principles of water sensitive urban design and green engineering.
- Quantify contaminant loads and stormwater flows to identify prioritised actions in the catchment and develop a long term template for future development activities.
- Enhance the monitoring of water quality to better understand the source of water quality degradation in the catchment.
- Investigate and promote water-sensitive urban designs solutions to reduce water contamination and develop integrated solutions which better manage impacts of urban development.

To develop accessible, high quality information that supports decision making and informs the public we will:

- Ensure accurate and updated information are available through sound environmental monitoring programmes, wildlife surveys and stormwater infrastructure assessments; and provide guidelines for the planning of restoration activities.
- Engage the general public through citizen science projects, workshops and education.
- Encourage discussion between government, councils, mana whenua and others makers to identify and support district plan changes when needed.



TE NGAHERE THE FOREST

Today

The catchment was once dominated by broadleaf-podocarp forest canopy of kohekohe, tawa, rātā, totara and rimu. At least 34% of the original native bush remains and is integrated into Wellington City Council parks and reserves networks. These form the Western Wellington Forest Key Native Ecosystem site which is managed for its ecological values. These remnants are however highly modified and subjects to weeds and mammalian predator infestations.

Although numerous species are known to be extinct in the catchment, spill over from ZEALANDIA has brought many bird species back to the city, including kākā, kākārīki, hihi and saddleback/tieke. Regionally threatened plant species (e.g. Kohurangi - Kirk's Daisy – *Brachyglottis kirkii*) were also the focus of more recent reintroduction in ZEALANDIA and Ōtari Wilton Bush.

Tomorrow

A network of suitable habitats for wildlife movement is required to ensure successful establishment of many native fauna and flora species within the catchment and beyond.

We have three main 100-year goals in this strategy area:

- Forest remnants and riparian zone connect and facilitate the movement of native wildlife.
- Terrestrial habitats provide a safe home to native wildlife.
- Urban habitats contribute actively to healthy ecosystems.

Our commitments for 2018-2028

To support the emergence of connected forest remnants and riparian zones we will:

- Map and assess habitat quality of forest remnants and riparian zones for biodiversity in order to make good decisions.
- Promote the expansion of the current extent of mature forest and the enhancement of riparian habitat.
- Encourage self-reintroduction of native species of fauna and flora that are extinct in the catchment, where possible, or actively reintroduce if necessary.

To foster terrestrial habitats that provide a safe home for native wildlife we will:

- Keep introduced predators and plants to low numbers in order to protect the native fauna and flora.
- Enhance planting in forested and riparian areas when required to facilitate revegetation and structural diversity and increase habitat diversity for native species.
- Promote self-establishment or reintroduce if necessary missing native species to restore the natural balance of terrestrial ecosystems.

To promote healthy urban habitats and ecosystems we will:

- Expand habitat restoration action to urban zones, including private gardens, road and rail reserves and industrial areas.
- Actively engage the Kaiwharawhara community in expanding vegetative habitats for terrestrial wildlife, by designing wildlife friendly gardens and planting native species to provide support to native fauna.
- Engage with the Kaiwharawhara community to foster understanding of catchment issues and role of urban areas in the health of the stream.
- Support Predator Free Wellington communities and work toward the first predator free catchment.



NGĀ TĀNGATA THE PEOPLE

Today

Today the Kaiwharawhara catchment is predominantly urban. Residential housing has spread overtime to form the suburbs of Wilton, Wadestown, Crofton Downs and Ngaio, parts of Karori, Northland, Kaiwharawhara and Khandallah. Over 39,000 people live in these suburbs. There are currently eight primary schools in the catchment and at least thirty community groups actively involved in the restoration of the Kaiwharawhara streams and forested habitats. This includes planting, weeding, predator control, citizen science monitoring and education.

The old pā site, at the Kaiwharawhara river mouth, has long been developed and iwi no longer reside in the area. Pipitea Marae, located in Thorndon Quay, has now become the main gathering centre for Taranaki Whānui in the area. In recent time, mana whenua are increasingly looking at reconnecting with this rohe, and particularly with the awa, to become active kaitiaki.

We have three main 100-year goals in this strategy area:

- The community recognises the catchment as a living entity and is actively involved in restoring and protecting its mouri.

- Mana whenua are connected to the whenua and are active kaitiaki of the Kaiwharawhara
- The project is exemplary in the catchment restoration and provides leadership in urban sustainability

Our commitments for 2018-2028

To start the community on a path to recognise the catchment as a living entity, and to encourage active involvement in restoration, we will:

- Support mana whenua in the assessment of the mouri within the whaitua (catchment).
- Raise awareness and understanding of the environmental issues in the Kaiwharawhara water catchment to minimize individual impacts on the stream and forest ecosystems.
- Support the local community to actively restore forest and freshwater ecosystems, and monitor the water quality and biodiversity in the catchment through coordinated citizen-science programmes.
- Support schools to restore their own rohe, through engagement and conservation activities and leadership.
- Encourage local residents to be actively involved in planting native species in their gardens and creating habitats for native fauna.
- Engage with local businesses to promote ecosystem-sensitive design, novel ways through which they can care for their own 'patch', and integrate restoration actions in development planning.

To support mana whenua in reconnecting to the Kaiwharawhara catchment we will:

- Assist mana whenua as appropriate to research whakapapa and mātauranga Māori and bring back the local stories.
- Develop Te Ao Māori principles to underpin our restoration and conservation efforts.
- Facilitate mana whenua engagement with the catchment and actively support involvement with leadership in restoration and education.

To ensure our work is exemplary in the area of catchment restoration and provides leadership in urban sustainability we will:

- Establish a collaborative approach among stakeholders in bringing significant change in the state of the environment.
- Work with research organisations to investigate frameworks and stakeholder engagement in ecosystem-based management plans.
- Share experience and expertise among stakeholders and to other catchments.
- Ensure research conducted through the project is shared nationally and internationally.
- Put forward recommendations on future urban development to embrace innovation and adopt a holistic, catchment scale roadmap for change.



ZEALANDIA's Strategic Partners

Department of Conservation

Greater Wellington Regional Council

Morphum Environmental Ltd

Taranaki Whānui

Wellington City Council

Wellington Water Ltd

We also acknowledge our numerous stakeholders:

Bells Track Working Group, CentrePort, Conservation Volunteers, Crofton Downs Predator Free, EnviroSchools, White Baits Connection, GIS in Conservation, Highland Park Progressive Association, Museum of New Zealand, Ngaio Progressive Association, Otari-Wilson's Bush trust, Royal Forest & Bird Protection Society, Trelissick Park Group-Ngaio Gorge WG, Victoria University of Wellington, Wellington Botanical Society and all the volunteers who generously donate their time and enthusiasm.

Quotes

“The sanctuary to sea project speaks directly to how we as Mana Whenua consider the environment - Mai Uta Ki Tai. Therefore, this is a very easy project for us to support and it’s holistic and long term view feeds directly into our philosophy and practice of kaitiakitanga. Zealandia is a natural partner and we are looking forward to pioneering an amazing project and opportunity that engenders a relationship of co-existence with our environment in a way that sees us collectively owning the obligations and responsibilities to our ngahere, awa and all those that dwell within it.” (Kara Dentice – Taranaki Whānui/Wellington Water)

“Greater Wellington Regional Council is hugely supportive of the Sanctuary to Sea project. This is a fantastic opportunity to engage Wellingtonians in learning about the value of our urban streams, and empower communities to partner in the monitoring, improvement and protection of the city’s waterways. This project aligns strongly with both regional and national direction to restore freshwater ecosystems and improve water quality.” (Megan Oliver – GWRC)

“Morphum were drawn to the project as an example of truly taking a whole of catchment approach which links water from the high ridges all the way to the sea. With the jewel in the crown being at the headwaters it is vital to support and sustain a corridor to the coast for flora and fauna. This requires consideration of not only the instream conditions but also the urban impacts on the Kaiwharawhara Stream through the many currently uncontrolled stormwater discharges. Understanding the current and future stormwater stressors can support the long term visionary planning which has defined Zealandia and hopefully act as an exemplar of how we can transition to better urban water outcomes for future generations.” (Stu Farrant – Morphum Environmental)

“Otari Wilton’s Bush Trust supports the Sanctuary to Sea project because the Kaiwharawhara Stream is an integral part of Otari Wilton’s Bush, running through its whole length and through adjacent areas such as the Sanctuary and Trelissick Park on its way to the sea. The Kaiwharawhara Stream is an essential link for wildlife such as native fish and birds and its good health is necessary for the ongoing wellbeing of Wellington’s indigenous biodiversity. The project heightens the awareness of the importance of the stream and its tributaries.” (Wilbur Dovey – Otari Wilton Bush)

“The Trelissick Park Group (TPG) has always envisaged the Park as part of the catchment’s ecological corridor from the harbour to the outer green belt. Project Kaiwharawhara involved all the voluntary groups in the catchment, meeting with relevant authorities to discuss issues and plan together. We are delighted that Zealandia has taken this over with renewed vigour as ‘Kia Mouriora te Kaiwharawhara - Sanctuary to Sea’. What we like about this project: wider scope of issues, wider participation, educational opportunities, networking, and well organised meetings.” (Peter Reimann – Trelissick Park Group)

Toitū te marae a Tāne, Toitū te marae a Tangaroa
Toitū te tangata

*If the land is well and the sea is well,
The people will thrive*



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