



Māori Engagement in the Climate Space – Aotearoa New Zealand

Dr Sarah Forgesson (Ngāti Whakaue, Ngāti Raukawa)
Preserving Legacies – Education and Knowledge Director
Queen's University Belfast

Te Tiriti o Waitangi



This bilingual treaty document was signed in 1840 between the British Crown and representatives of over 500 Māori tribes.

It is the major foundational documents which has since dictated the type of governance and policy development and is subsequently ingrained in the social, political and economic makeup of A/NZ.

Waitangi Tribunal

The Waitangi Tribunal was created as a permanent commission of inquiry to consider claims by Māori that Crown actions had breached the principles of te tiriti.



Māori Involvement

Section	Description
6 - Matters of national importance	(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development: (b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development: (c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna: (d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers: (e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga: (f) the protection of historic heritage from inappropriate subdivision, use, and development: (g) the protection of protected customary rights: (h) the management of significant risks from natural hazards.
7 - Other Matters	(a) kaitiakitanga: (aa) the ethic of stewardship: (b) the efficient use and development of natural and physical resources: (ba) the efficiency of the end use of energy: (c) the maintenance and enhancement of amenity values: (d) intrinsic values of ecosystems: (e) [Repealed] (f) maintenance and enhancement of the quality of the environment: (g) any finite characteristics of natural and physical resources: (h) the protection of the habitat of trout and salmon: (i) the effects of climate change: (j) the benefits to be derived from the use and development of renewable energy.
8 - Treaty of Waitangi	In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

Heritage New Zealand Pouhere Taonga Act 2014

Heritage New Zealand Pouhere Taonga (Heritage New Zealand, HNPT) is an autonomous Crown entity formed under the Crown entities Act 2004. Its main act to date is the Heritage New Zealand Pouhere Taonga Act (NZPTA), which was introduced in 2014 to replace the New Zealand Historic Places Trust Pouhere Taonga Act (NZHPT Act) 1993 and has statutory functions and powers in relation to the 'identification, preservation and conservation' of historic and cultural heritage in A/NZ.

The **Māori Heritage Council** acts as an overseeing body that advocates for Māori interests and is well positioned to advocate on behalf of said interests.



Key Climate Policy

Climate Change Response Act 2002

Purpose:

- Contribute to the global effort under the Paris Agreement to limit the global average temperature increase to 1.5° Celsius above pre-industrial levels
- Allow New Zealand to prepare for, and adapt to, the effects of climate change.



Climate Change Response (Zero Carbon) Amendment Act 2019



Climate Change Commission

Independent board of eight commissioners consulting on:

Emissions Trading Scheme units and price control

Emissions Reduction Plan

National Adaptation Plan

Emissions budgets and targets

Changes set about to do four key things:

- Set a new domestic greenhouse gas emissions reduction target for New Zealand to:
 - reduce net emissions of all greenhouse gases (except biogenic methane) to zero by 2050
 - reduce emissions of biogenic methane to 24-47 per cent below 2017 levels by 2050, including to 10 per cent below 2017 levels by 2030
- Establish a system of emissions budgets to act as stepping stones towards the long-term target
- Require the Government to develop and implement policies for climate change adaptation and mitigation
- Establish a new, independent Climate Change Commission to provide expert advice and monitoring to help keep successive governments on track to meeting long-term goals

Vulnerabilities in Māori

Government funded reports published in 2017 (Ministry of the Environment 2017), identify and highlight how Māori are amongst the most vulnerable groups to the impact of the climate crisis in New Zealand, followed by a stream of more recent publications, including the major report by Ngā Pae o te Māramatanga (NPM) and Manaaki Whenua – Landcare Research

He huringa āhuarangi, he huringa ao: a changing climate, a changing world



**He huringa āhuarangi, he huringa ao:
a changing climate, a changing world**

Prepared for: Ngā Pae o te Māramatanga

Whiringa-ā-nuku 2021

Sector	Group	Interests	Risk		Adaptation strategies
Terrestrial Ecosystems	Iwi, hapū, whānau, trusts, incorporations, and pan-Māori	Indigenous flora and fauna	Now	Minor	- Implement monitoring practices that provide for the early detection of climate-induced invasive plants, animals, and insects - Support the control and manual removal of climate-induced invasive species - Improve understanding of biodiversity-climate linkages, with a view to prioritising activities to restore degraded ecosystems and habitats - Develop new approaches to ecosystem utilisation, protection, and management, that draw upon science and Mātauranga Māori
			2050	Moderate	
			2100	Major	
Terrestrial Ecosystems	Iwi, hapū, whānau, trusts, incorporations, and pan-Māori	Managed flora and fauna	Now	Moderate	- Utilise more water-wise irrigation technologies - Grow crops that are better adapted to warmer, drier summers - Implement monitoring practices that provide for the early detection of climate-induced invasive plants, animals, and insects - Explore the suitability of tribal lands for reforestation/afforestation to harness the multiple functions of forests, from supporting biodiversity and ecosystem services to carbon sequestration and controlling erosion
			2050	Moderate	
			2100	Major	
Freshwater Ecosystems	Iwi, hapū, whānau and pan-Māori	Rivers and streams	Now	Moderate	- Enhance riverbank vegetation to slow erosion and provide shade and cool water for freshwater species - Assist the migration of vulnerable animal species to suitable habitats - Implement monitoring practices that provide for the early detection and removal of climate-induced invasive plants, aquatic animals, and insects - Improve understanding of freshwater species vulnerability to climate change, with a view to prioritising activities to restore degraded ecosystems and habitats
			2050	Moderate	
			2100	Major	
Freshwater Ecosystems	Iwi, hapū, whānau, and pan-Māori	Lakes and wetlands	Now	Minor	- Enhance riverbank vegetation to slow erosion and provide shade and cool water for freshwater species - Assist the migration of vulnerable animal species to suitable habitats - Implement monitoring practices that provide for the early detection and removal of climate-induced invasive plants, aquatic animals, and insects - Improve understanding of freshwater species vulnerability to climate change, with a view to prioritising activities to restore degraded ecosystems and habitats
			2050	Moderate	
			2100	Major	

Table 4. He Arotake Tūraru – He Oranga Tangata, Healthy People

Sector	Group	Interests	Risk		Adaptation strategies
Māori health status and inequities	Individuals, whānau	Minimising health risks of climate change; maximising health co-benefits of climate action	Now	Moderate	- Individual/whānau level: walk/bike, use public transport, reduce meat and dairy consumption, and increase plant-based diets, ensure homes are insulated and energy-efficient. - Communities – cut back on deforestation, plant trees, design towns/cities to encourage healthy, low-carbon transport, develop renewable energy systems (wind, sun), build healthy, energy-efficient housing, establish community food gardens, improve waste and recycling systems.
			2050	Major	
			2100	Major	
Institutional health systems	Mainstream health providers, Ministry of Health	Equity	Now	Moderate	- Reorient systems to better enable iwi, hapū and whānau to thrive as Māori, create healthy and sustainable environments in which to live and raise children - Dismantle colonial structures and systems that privilege Eurocentric values - Recognise the relevance and value of distinctive Māori knowledge systems and indigenous ways of knowing, being and doing that are embedded in kaupapa Māori models of care including rongoā Māori - Establish meaningful Māori – Crown partnerships - Ensure Māori health development is led by iwi and hapū, including both Māori health sector development and intersectoral action
			2050	Major	
			2100	Major	
Māori identity and health	Iwi, hapū, whānau trusts and incorporations, central government	Natural health, mental wellbeing, social connectivity	Now	Moderate	- Support mana whenua governance and kaitiakitanga of natural resources - Harness ecological restoration through tree planting to help reconnect Māori to the land, thereby strengthening mātauranga Māori and Māori systems of healing - Realise non-timber-based products like rongoā Māori through replanting Indigenous species
			2050	Major	
			2100	Major	

Impact on Māori Cultural Heritage

For Māori these impacts include loss of:

- culturally significant structures and places.
- access to equitable resources (forestry, primary sectors, seafood).
- cultural practises.
- native taonga species.

Climate change also impacts the ability to pass down Mātauranga Māori to future generations and enact cultural processes such as manaakitanga, whanaungatanga, and kaitiakitanga.

He Pou a Rangi – Climate Change Commission

Crown-Māori engagements on the climate crisis have proceeded primarily on the basis of direct dialogue prompted by the Climate Change Commission's recommendations

Produce independent advice to the Government on the direction of policy that will enable Aotearoa New Zealand to respond and achieve a low-emissions, climate-resilient future.

This is mainly done through public consultation – often targeted



Māori and Climate Vulnerability

Various provisions were brought about by the Climate Change Commission sought to ensure the effective participation of Māori in decision-making - **specifically requiring the Minister to ensure consultation with iwi and Māori has been adequate including emission reduction plans which conceivably would include any mitigation policies which might affect the relationship of Māori with their traditional lands.**

Consultation with Māori needs to fulfil Crown's obligation to give effect to the principles of the Treaty of Waitangi – namely that of partnership.

Climate Change Commission's addition of a Chapter addressing the “**the key concerns raised by Iwi/Māori submissions**” in direct response to consultation with Māori where they expressed disappointment in the Commission's lack of attention to Māori-specific issues

Climate Change Iwi Leaders Group

"The climate change challenge for Māori society is about sustainable living arrangements and development, as much as it is about natural hazards management such as risks associated with flooding, storms and coastal erosion," says Mike. "Our mission is to bring together engagement, understanding, empowerment and implementation to drive Māori-led climate resilience strategies."



Climate Change Iwi Leaders Group chair Mike Smith is seeking a declaration in the High Court the Government is "failing" Māori through inaction over climate change. Photo / File

Presence in Reporting

Two major national level reports around climate change:

- **National climate change risk assessment for New Zealand**
- **National adaptation plan**

National Climate Change Risk Assessment for New Zealand

Arotakenga Tūraru mō te Huringa Āhuarangi o Āotearoa

Identifies 43 priority risks across five value domains (natural environment, human, economy, built environment and governance)

The risk assessment was meant to feed to Government information to prioritise action, including through the national adaptation plan.



Guiding principles – Ngā mātāpono

The NCCRA framework provides a set of guiding principles, which have informed the risk assessment and engagement work. The mātāpono are based on the principles in the National Disaster Resilience Strategy (Ministry of Civil Defence and Emergency Management, 2019), with the addition of ōhanga (prosperity), from the Living Standards framework (The Treasury, 2018).

The mātāpono, which are additional to the principles of [Te Tiriti o Waitangi](#) (partnership, protection, participation and potential), are:

- manaakitanga (care and reciprocity)
- kaitiakitanga (intergenerational sustainability)
- whanaungatanga (connectedness and relationships)
- ōhanga (prosperity)
- rangatiratanga (leadership and autonomy)
- kia mahi ngātahi (engagement and participation)
- kia āwhina (support).

Risks for Māori

Risks to Māori social, cultural, spiritual and economic wellbeing from loss and degradation of lands and waters, as well as cultural assets such as marae, due to ongoing sea-level rise, changes in rainfall and drought.

Risks to Māori social, cultural, spiritual and economic wellbeing from loss of species and biodiversity due to greater climate variability and ongoing sea-level rise.

Risks to Māori and European cultural heritage sites due to ongoing sea-level rise, extreme weather events and increasing fire weather.

Risk of a breach of Treaty obligations from a failure to engage adequately with and protect current and future generations of Māori from the impacts of climate change.

Some risks will have a disproportionate impact on Māori or certain Māori groups

Risks for Māori

Enhanced risks include:

Risks to social cohesion and community wellbeing from displacement of individuals, families, and communities due to climate change impacts.

Risks of exacerbating existing inequities and creating new and additional inequities due to differential distribution of climate change impacts.

Risks of conflict, disruption, and loss of trust in government from changing patterns in the value of assets and competition for access to scarce resources primarily due to extreme weather events and ongoing sea-level rise.



Mātauranga Māori-based gaps

Mātauranga Māori is about a Māori way of *being* and *engaging* in the world – in its simplest form, it uses kawa (cultural practices) and tikanga (cultural principles) to critique, examine, analyse and understand the world.

It is based on ancient values of the spiritual realm of Te Ao Mārama (the cosmic family of the natural world) and it is constantly evolving as Māori continue to make sense of their human existence within the world.

Matters for consideration and concern raised at the hui during the NCCRA's engagement included:

- The current NCCRA framework, which was developed by the Ministry for the Environment, is not part of a Māori framework and therefore the relationship between the domains, their risks, and mātauranga Māori is unclear. Mātauranga Māori provides a holistic framework for viewing the world. The linear and reductive framework required by risk assessment methodology makes it difficult to bring these two frameworks together. In some instances, this restricted the ability for participants to frame Māori risks for integration into the wider framework.
- Mātauranga Māori (or more specifically the knowledge held by a particular Māori group) includes information held sacred to a particular iwi/hapū, as well as information that could be made available by an iwi/hapū to others. However, the appropriate timing for sharing this information, who should share it (eg, the [kaumātua](#), [pākeke](#), [rangatahi](#) or those with mandate), and how to share it (ie, the appropriate forum) is not always clear. There were differing views at the hui in this regard.
- Some participants noted that mātauranga Māori should form the basis of understanding te ao Māori (the Māori worldview), specifically at a local iwi/hapū level. This raised the tension between achieving a pan-Māori perspective on national risks for New Zealand, versus regional and local perspectives on more local climate risks and opportunities.
- There was general consensus that investment in more discussion about Māori concepts could unlock a way forward for Māori on climate change, and that mātauranga Māori is a key component that would drive such an approach. This discussion should be led by Māori at the iwi/hapū level, with the Crown as a partner.

Adapt and thrive: Building a climate-resilient New Zealand – New Zealand's first national adaptation plan Urutau, ka taurikura: Kia tū pakari a Aotearoa i ngā huringa āhuarang

Contains strategies, policies and actions that will help New Zealanders adapt to the changing climate and its effects – so we can reduce the potential harm of climate change, as well as seize the opportunities that arise.



Urutau, ka taurikura: Kia tū pakari a Aotearoa i ngā huringa āhuarangi Adapt and thrive: Building a climate-resilient New Zealand

AOTEAROA NEW ZEALAND'S
FIRST NATIONAL ADAPTATION PLAN



Many Māori communities are located in rural and remote locations, and are particularly vulnerable to the effects of climate change on their homes, infrastructure and sites of cultural significance to Māori – including marae, urupā (burial grounds), waahi tapu (sacred sites) and mahinga kai (food gathering sites). In the Tairāwhiti rainfall event in March 2022, Anaura Bay – a coastal community with a high Māori population – was cut off due to widespread flooding and road slips. Hinetamatea marae suffered significant damage and part of the urupā was washed out to sea. Similar stories of other remote communities – in Mohaka, Raupunga, Tolaga Bay, the Waikato, and the Wairua Lagoons – of road closures, power cuts, kaimoana contamination and the potential for further displacement were told in submissions and workshops during the consultation phase of this plan.

Mātauranga Māori at a hapū and iwi level will be critical to informing local and central government climate adaptation responses.

The Government will work together with Māori to support Māori to explore adaptation options for Māori, led by Māori as part of [Action 3.3 Establish a platform for Māori climate action](#).

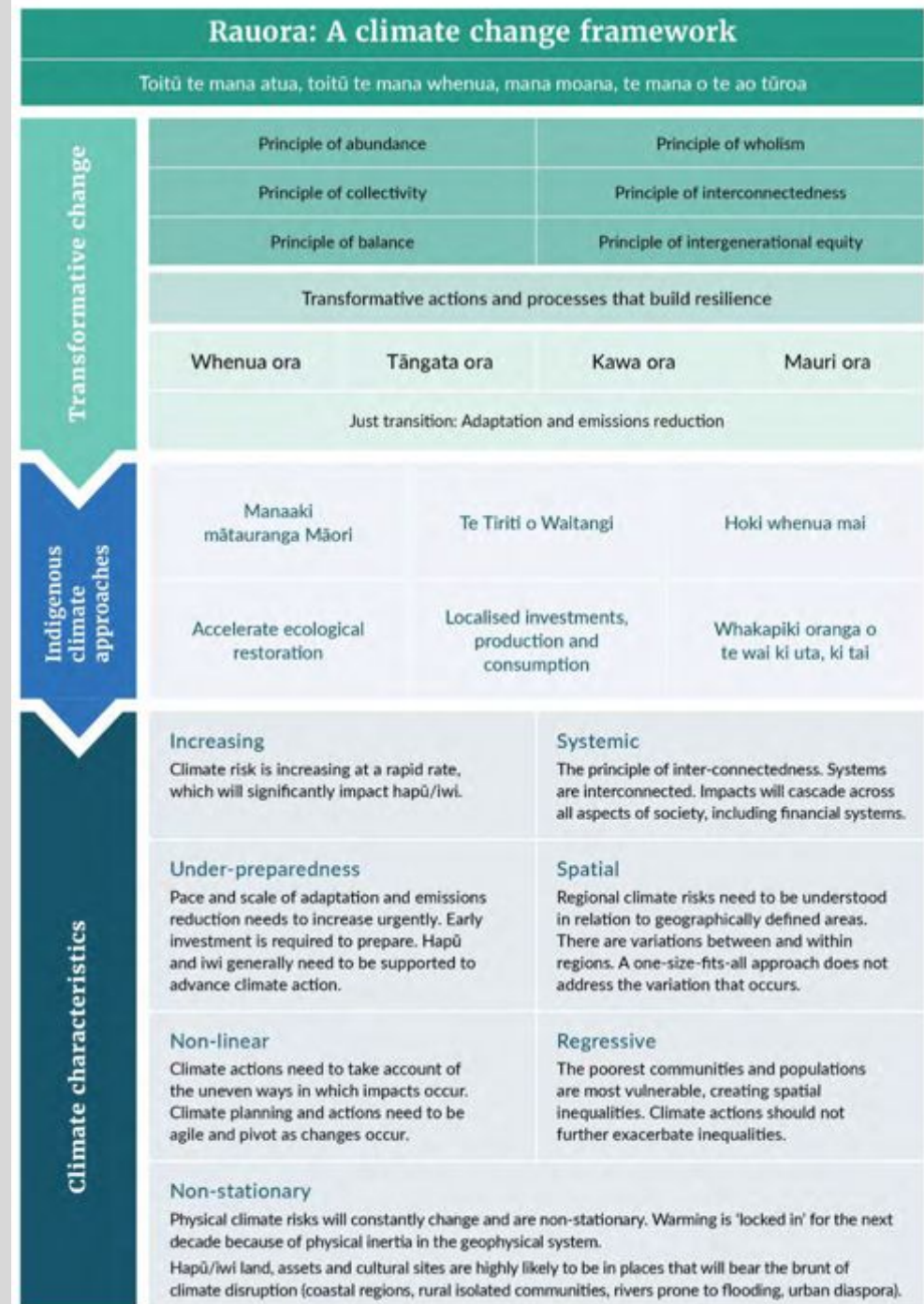
The Government recognises that its Tiriti partners have a worldview that sits outside western interpretations. It has commissioned Ihirangi to provide an indigenous worldview of the national adaptation plan – which is represented by the Rauora framework – to help facilitate its work in partnership with Māori.

Rauora: A Climate Framework

The Rauora framework is also a foundation from which iwi, hapū and whānau can apply their own mātauranga-a-iwi (knowledge with an iwi-specific base).

The notion of whenua ora, tangata ora, mauri ora recognises that the land, people and associated life forces are interconnected. In this way, a well land is a well people, and so too are the life forces of these components of the world healthy. The notion of kaitiakitanga is implicit in this approach, where Māori continue to strengthen their stewardship of the environment.

The Rauora framework supports and promotes transformative approaches, resilience building and supporting measures. It elevates and celebrates the contributions indigenous values and mātauranga Māori can bring to climate action.



Action 3.10 Assess socio-economic and climate vulnerability for Māori:

Action 3.27 Develop a framework for assessing exposure and vulnerability of taonga/cultural assets to climate change.

The plan supports the development and use of mātauranga Māori in our adaptation journey, including through the following actions:

Action 3.7.6 Produce guidance on integrating mātauranga Māori into adaptive planning and working with mana whenua.

Action 3.21 Develop mātauranga Māori indicators of climate impacts on the natural environment.

Action 3.24 Produce new tools and guidance specific to mātauranga Māori and mātauranga indicators.

Action 5.8 Support kaitiaki communities to adapt and conserve taonga/cultural assets.

Action 6.3 Implement Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020.

Action 6.4 Implement the proposed National Policy

Ngā mahi āhuarangi mō ngāi Māori Climate action for Māori

Te mahere urutaunga ā-motu

The national adaptation plan

Adapt and thrive: Building a climate-resilient New Zealand

Our first national adaptation plan will help New Zealanders adapt to the effects of climate change now, and better protect us against changes to come.

Many impacts are already with us, with unstable and unpredictable weather, worsening floods, droughts and storms, and rising sea levels. We can expect more changes will happen. Lowering emissions can reduce the impacts of climate change but won't eliminate them all.

The national adaptation plan sets out what actions the Government will take over the next six years to help all New Zealanders adapt and thrive in a changing climate.

Māori are kaitiaki of their whenua, leaders in their communities, decision-makers about resources and infrastructure, landowners and business owners. Māori will help lead the response to climate change in each of these roles. Mātauranga Māori will help us learn and better inform our decision-making.

The plan has actions relevant to every sector and community in Aotearoa New Zealand, and addresses the priority risks that need action now.

Managing risk now and for the future

In 2020, the National Climate Change Risk Assessment set out the main risks that New Zealanders face from the impacts of climate change.

These include risks to people's homes and safety, their livelihoods, marae and cultural sites of significance.

This national adaptation plan is the first in a series. It will be updated every six years to respond to changing climate risks.

Action 6.7 Implement the National Policy Statement for Freshwater Management 2020.

Action 7.2 Partner with Māori landowners to increase the resilience of Māori-owned land, homes and cultural sites.

Action 7.3 Partner with Māori to support Māori-led approaches to adaptation planning.

Action 9.3 Develop the emergency management workforce.

Action: 9.6 Building community resilience through social cohesion.

Action 9.9 Expand current funding for proactive community resilience.

Action 10.5 Deliver the Māori agribusiness extension programme.

Action 10.17 Support Māori small business resilience and transitions.

Ngā mahi āhuarangi mō ngāi Māori Climate action for Māori

Te mahere urutaunga ā-motu
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Action 5.8: Support kaitiaki communities to adapt and conserve taonga/cultural assets

Timeframe:	Years 1–6 (2022–28)
Lead agency:	MCH
Relevant portfolio:	Culture and Heritage
Primarily supports:	Objectives HBP3 and HBP4
Status:	Current

Work across government to ensure hapū, iwi and Māori and communities have access to information so they can plan for a changing climate and adapt their cultural assets. Support includes advice, wānanga (conferences, forums, seminars), expert assistance, information sharing and funding advice for kaitiaki to self-determine adaptation pathways.

This action will be a coordinated cross-government approach, partnering with hapū, iwi and Māori to understand the threats to cultural heritage and to support initiatives to reduce the impact.

This action will also help achieve objective HBP1 (Homes and buildings are climate resilient, and meet social and cultural needs) by adapting and conserving physical structures of cultural value. It also contributes to objective HBP4 (Threats to cultural heritage arising from climate change are understood and impacts minimised) through its focus on taonga of significant value to hapū, iwi and Māori.

		• Conserve valued cultural heritage.
HBP3	Māori connections to whenua and places of cultural value are strengthened through partnerships	• Support initiatives that identify and respond to climate risks specific to iwi, hapū and Māori. • Work in partnership with hapū, iwi and Māori on Māori-led adaptation solutions. • Identify and embed Māori knowledge, identity and values in urban design and construction to manage climate hazards. • Increase the resilience of cultural heritage, to strengthen the ties between whānau, hapū and iwi and their whenua.
HBP4	Threats to cultural heritage arising from climate change are understood and impacts minimised	• Understand where cultural heritage sites are, their values, who they are important to and how climate change could affect them. • Understand how the loss of cultural heritage can affect social, cultural, spiritual and economic wellbeing, including for Māori, and the positive role of cultural heritage in adaptation and wellbeing. • Improve disaster management for cultural heritage. • Enable communities to maintain and protect their taonga and assets. • Protect and conserve cultural heritage through appropriate regulation.

Manaaki Whenua – Landcare Research

Dedicated stream to climate change research – namely focused on adaptation and mitigation

More land use and management focused, but there is an increasing acknowledgment of Mātauranga and tikanga in there research with **Manaaki Taiao**.

Is a rōpū (group) made up of Manaaki Whenua – Landcare Research Kairangahau Māori (Māori researchers) working on Māori-led research projects within a range of science portfolios



Action on climate change

Our scientists are working to ensure that New Zealand has strategies to manage the risks and respond to opportunities that climate change offers for the environment, the economy and society.

Manaaki Whenua – Landcare Research

For around 1000 years in Aotearoa, traditional knowledge (mātauranga Māori) has been handed down from ancestors (tupuna, tipuna), rangatira, kaumātua, kuia, tohunga, and knowledgeable people. Mātauranga Māori, as with other indigenous peoples' knowledge systems, has an important role in contemporary resource management. Manaaki Whenua – Landcare Research is a key partner in working alongside Māori to help achieve kaitiakitanga goals and aspirations.

Manaaki Whenua – Landcare Research

Ā mātau mahi - Our work



Release of Te Ao Māori climate change report

News

MEDIA RELEASE MĀTAURANGA MĀORI

ACTION ON CLIMATE CHANGE



Te Mana o te Taiao is about making a collective difference

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BIODIVERSITY



Deep ecological research funded for nationally significant Māori rock art sites

News

NEWS



Honey landscape model

Species & ecosystem conservation

PROJECT BEES BIODIVERSITY



Kaikōmako manawa tāwhi (Pennantia baylisiana) returned to iwi

News

NEWS BIODIVERSITY

He matawara o mua – Taking account of shifting ecological baselines

Global biodiversity losses due to human activities have accelerated more in the past 50 years than at any time in human history. Intertwined with this rapid decline is the loss of knowledge about past environmental conditions and species abundances. This loss threatens how the next generation perceive the state of their environment within the scale of their lifetime – a phenomenon known as shifting ecological baselines.

Ecological indicators based on western science systems are often used in monitoring and reporting to understand environmental change, but the short timeframes in which data are collected can hinder understandings. Increasingly, conservation and restoration organisations are looking to Indigenous peoples to detect and track long-term environmental changes through their direct interactions with natural resources (e.g. customary harvest) or general observations during time on land or sea. However, this type of work often uses language concepts and ordinal scores (e.g. few, some, a lot), so these systems can also be vulnerable to how individuals perceive, experience, and remember past natural resource states.

A recent study by Manaaki Whenua and Tūhoe Tuawhenua Trust set out to determine the relationships between ordinal scores and quantitative estimates (e.g. flock size) used by members of the Tuawhenua community of Ruatāhuna to gauge different forest indicators. The researchers also investigated whether community members of different ages gauged these indicators differently. The researchers showed that while the observed relationships remained consistent across all age classes, there was a significant intergenerational shift in how community members understood the abundance and size of a selected group of species.



Two generations of Tūhoe, Te Whenua Te Kurapa and Puke Timoti, discuss their impressions of abundance and productivity witnessed in the forests of Te Urewera over their lifetimes.

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Te Reo o Te Repo – the Voice of the Wetland

Table 1. Taonga species historically taken from North Otago and restoration actions underway

Taonga Species	Restorative Actions	Collaborations
Tuna	• Prioritised fish passage as an issue: - Trap and transfer of elvers and relocate above the Waitaki dam - Trap adult migrants and relocate below the dams • Prioritised protection of riparian wetlands • Identified and secured aquatic sites to enhance • Wānanga held to introduce whānau to mātauranga and science of tuna • Advocated for flow and allocative regimes that maintained connections between mainstream, tributaries, wetlands, etc. - Flow regime in two rivers modified - Allocation limits set in two rivers, and clawed back in another - An allocation for mahinga kai proposed in regional plan	• Meridian Energy Ltd • NIWA
Weka	• A weka reintroduction programme has been initiated in Otago. The benefits of this programme to Ngāi Tahu whānau are being monitored	• Department of Conservation • Te Rūnanga o Ngāi Tahu • Private landowners
Koarearea (raupō)	• A wānanga is planned to trial the process of extracting and using the pollen • Wetlands to be protected as a pā raupō were identified and agreement reached with the landowner	• Private landowners
Harakeke	• Secured a pā harakeke and initiated restoration (removed exotics, sourcing and growing seeds) • Using seeds from the pā harakeke to re-establish the cultivar elsewhere	• Private landowners • Meridian Energy Ltd • University of Otago
Indigenous fish	• Relocations of taonga native fish species to other catchments have been trialled	• Department of Conservation
Indigenous plants	• Restoration plans are being implemented at a number of sites • Whānau engagement in planting days	• Landcare groups • Private landowners

TE REO O TE REPO THE VOICE OF THE WETLAND

CONNECTIONS, UNDERSTANDINGS AND LEARNINGS
FOR THE RESTORATION
OF OUR WETLANDS

EDITED BY YVONNE TAURA
CHERI VAN SCHRAVENDIJK-GOODMAN
AND BEVERLEY CLARKSON



The Deep South National Science Challenge has now closed; [read more about our journey.](#)

Changing with our climate

START ADAPTATION PLANNING TODAY

Tools and information to help you adapt to climate change

CHOOSE A PLACE TO START

WHAT IS CLIMATE CHANGE?

CLIMATE IMPACTS

HOMES

MARAE

FARMS, WHENUA & AWA

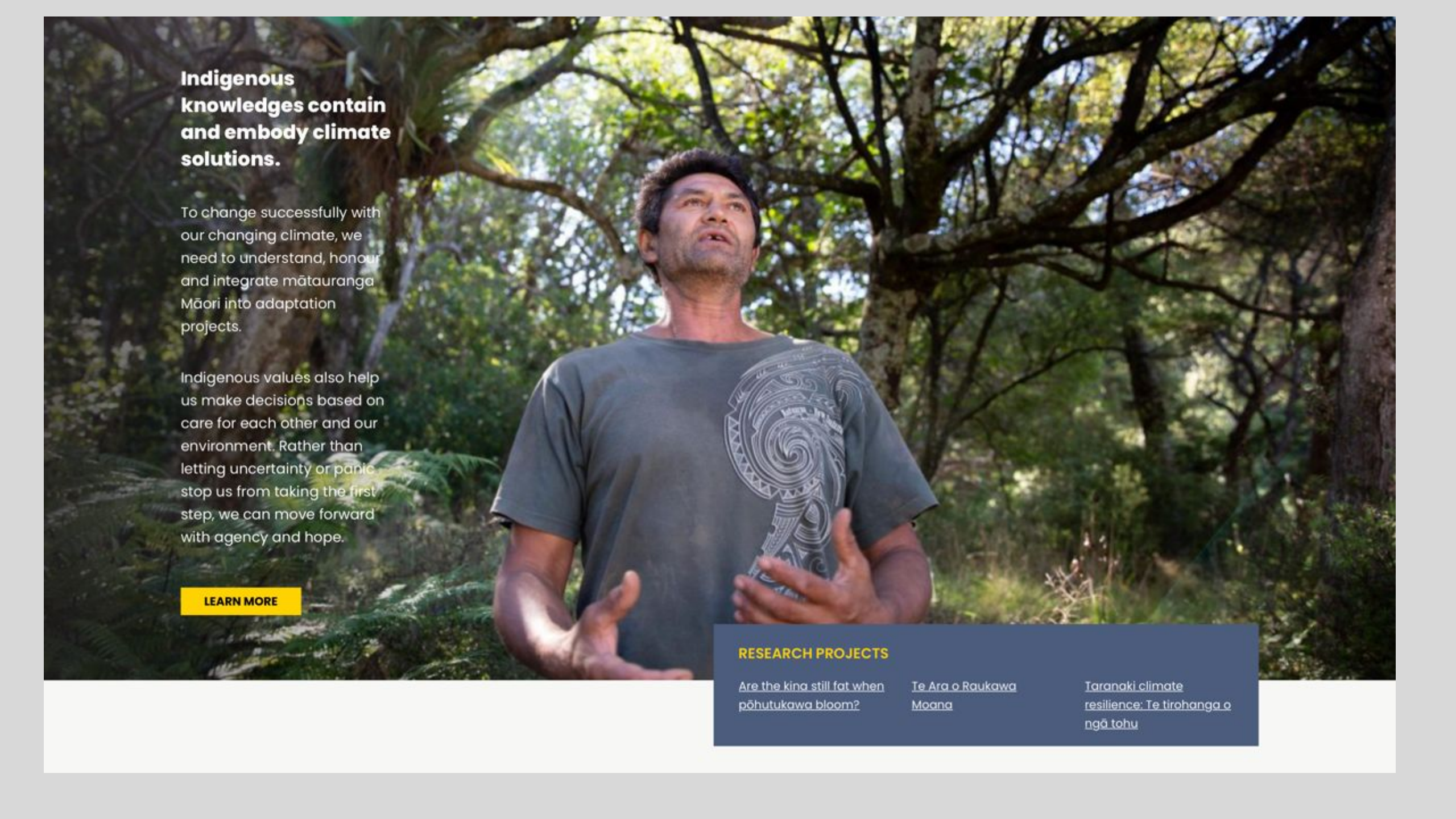
WORK & BUSINESS

COMMUNITIES

NATIONAL PLANNING

RANGATAHI CLIMATE LEADERSHIP

“Tangaroa's getting bigger, eh māmā.”

A man with dark hair and a beard, wearing a grey t-shirt with a white Māori koru design, stands in a forest. He is looking upwards with his hands open in a gesture of connection or explanation. The background is filled with the dense canopy of trees, with sunlight filtering through the leaves.

Indigenous knowledges contain and embody climate solutions.

To change successfully with our changing climate, we need to understand, honour and integrate mātauranga Māori into adaptation projects.

Indigenous values also help us make decisions based on care for each other and our environment. Rather than letting uncertainty or panic stop us from taking the first step, we can move forward with agency and hope.

[LEARN MORE](#)

RESEARCH PROJECTS

[Are the king still fat when pōhutukawa bloom?](#)

[Te Ara o Raukawa Moana](#)

[Taranaki climate resilience: Te tirohanga o ngā tohu](#)

Vision Mātauranga

Ko ngā mahi inaianei hei oranga mo rātou apopo | *For those who will benefit from our efforts today*

Vision Mātauranga projects are investigating climate change impacts and opportunities for iwi, hapū, whānau and Māori business. Together they represent the largest ever Māori-led research effort into the implications of changing climate conditions for Māori society.

PROGRAMME CONTACTS

PROGRAMME LEAD: Sandy Morrison

CHALLENGE MANAGER: Mark Webley

25 Projects

› He whakaneke a te hapori o
Te Hāpua ki tētahi ara
haumarū
ACTIVE PROJECT



› Eating with my Tuupuna
ACTIVE PROJECT



› Te Huka o Te Tai
ACTIVE PROJECT



› Moutoa Island Restoration
ACTIVE PROJECT



› Kōhanga pēpi kōura
ACTIVE PROJECT



› Ki te whare tū tonu, ki te
whare manawaroa
ACTIVE PROJECT



› Are the kina still fat when
pōhutukawa bloom?
ACTIVE PROJECT



› Kai ora: Restoring local
Māori food systems by
restoring power to marae
ACTIVE PROJECT



› Higher carbon prices:
Impacts on farming and
forestry whānau
ACTIVE PROJECT



MARAE

FARMS, WHENUA & AWA

RESEARCH PROGRAMME
Vision Mātauranga

PROJECT LEADERS

Mohuru Wilcox
Mānaki Whenua Landcare Research

Nikki Haccoutt
Mānaki Whenua Landcare Research

[View the full team](#)

BUDGET \$250,000
DURATION December 2021 –
February 2024

ACTIVE
PROJECT

RESEARCH PROJECT

Taranaki climate resilience: Te tirohanga o ngā tohu

Biodiversity in a changing climate

Northern Taranaki kaitiaki use environmental tohu as early warning signs, and even more so in the context of climate change. Environmental tohu help kaitiaki understand the best ways to care for te taiao, to monitor environmental change, and to focus effort and funding (for example, on pest control, restoration, replanting or reintroducing locally extinct species).



RESEARCH PROJECT

Are the kina still fat when pōhutukawa bloom?

For generations, Ngāti Whakahemo have used the whakataukī of the flowering pōhutukawa as a tohu to tell us when the kina are ripe and ready to harvest at Motunau (Plate Island) and on its surrounding reefs. Unfortunately, kaumātua and kaitiaki have begun to observe that the way the pōhutukawa blossoms (when, for how long, and how intensely) is no longer in sync with or a strong indicator of the fatness of kina.



RESEARCH PROJECT

Kai ora: Restoring local Māori food systems by restoring power to marae

Alongside three marae of the Southern Kaipara this research aims to explore local food systems and food sovereignty as a means of decolonial climate action. As researchers and public health advisors our primary role is to support the return of resources and power from western institutions back to whānau and to marae.



Climate Planning and Encoded Knowledge

After their arrival in Aotearoa. Māori developed various forms of codifying knowledge—many based upon oral delivery.

Some narrative forms include **moteatea** (chants, poems), **whaikorero** (oratory, speechmaking), **maramataka** (calendar), **waiata** (songs), **pepeha** (quotations), **whakataukī/whakatauāki** (proverbs), **whakapapa** (genealogies) and **pūrākau** (stories)—each with its own categories, style, complex patterns and characteristics

Whakataukī/Whakatauāki

Koia tēnei: ko te toroa noho au, e tangi ana ki tōna kāinga; e mihi ana

“This is a fact: I live like an albatross, crying out to its nesting place and greeting (you in sorrow).”

(A saying used to refer to the confiscation of lands and the displacement of Māori from their homes)

He ua kowhai

“A kōwhai shower”

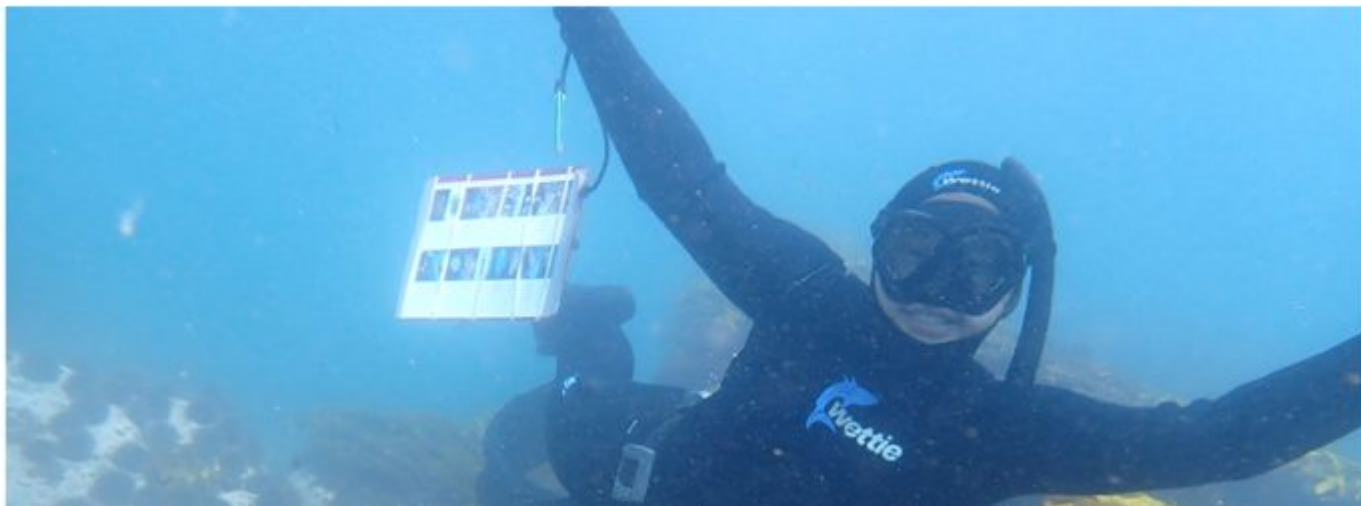
(A saying that describes a spring shower, at the time of the kōwhai blooms, and signals the appearance of the tūī as well as the availability of some food sources)

Ki te kore te tangata e manaaki i tōna taiao, ka kore te tangata e whai orange

“If people do not take care of the environment, we are not taking care of our own health and wellbeing.”

Are the kina still fat when pōhutukawa bloom?

For generations, Ngāti Whakahemo have used the whakataukī of the flowering pōhutukawa as a tohu to tell us when the kina are ripe and ready to harvest at Motunau (Plate Island) and on its surrounding reefs. Unfortunately, kaumātua and kaitiaki have begun to observe that the way the pōhutukawa blossoms (when, for how long, and how intensely) is no longer in sync with or a strong indicator of the fatness of kina.



Revitalisation of Knowledge

MARAE

CLIMATE IMPACTS

FARMS, WHENUA & AWA

COMMUNITIES

RESEARCH PROGRAMME

Vision Mātauranga

PROJECT LEADERS

[Robert McClean](#)

Te Rūnanga o Ngāti Toa Rangatira

[Ashleigh Sagar](#)

Te Rūnanga o Ngāti Toa Rangatira

[View the full team](#)

BUDGET \$250,000

DURATION January 2022 –
February 2024

ACTIVE
PROJECT

RESEARCH PROJECT

Te Ara o Raukawa Moana

Active kaitiakitanga in response to climate change

Ko Te Rauparaha te rangatira o Kāpiti me Te Moana-a-Raukawa

Raukawa Moana, the Cook Strait, is of the highest cultural and spiritual significance to Ngāti Toa Rangatira. Our seafaring and waka histories and traditions enabled travel across the sea highway for raupatu, trade, seasonal customary harvesting, events and whānau. Te Ara o Raukawa Moana is a research project of Ngāti Toa Rangatira to enable active kaitiakitanga at Raukawa Moana (Cook Strait) in response to climate change.



RESEARCH WEBINAR

Climate-resilient Māori forestry and agriculture

In this seminar, Dr Shawn Awatere, project leader for 'Climate-resilient forestry & horticulture', presents research on how East Coast landowners could shift to more sustainable land-use practices and investments, such as reforesting pine forest or sheep and beef farmland with native trees.



Environmental Tohu

Environmental indicators or tohu, are also abundant in regards to knowing the weather and climate.

These indicators help us make judgements about the health of wildlife, the time for planting and harvesting, and the management of risks such as crossing seas and local rivers. Many of the tohu used by Māori are closely aligned with changes in local weather and climate conditions.

The use of tohu comes from Te Ao Māori principles that all things are connected through whakapapa (genealogy). These whakapapa connections in the environment reveal much about what's happening in our skies.

NIWA – Taihoro Nukurangi

Provide the main national climate data and modelling for Aotearoa

Most data is relegated to the national scale, with coarse data available on a regional scale



Services

How can we help you?

- [Climate change adaptation](#)
- [Obtaining climate data from NIWA](#)
- [Climate mapping](#)
- [Virtual Climate Stations](#)
- [NatHERS climate files 2012](#)



Resources

Understanding climate and climate change.

- [Climate Change Adaptation Toolbox](#)
- [El Niño and La Niña](#)
- [Ocean acidification](#)
- [NZ temperature record](#)
- [National Climate Change Risk Assessment](#)



Research

Our world-leading research projects.

- [Combining physics and AI for high-resolution ensemble-based climate projections](#)
- [Updated national climate projections for Aotearoa New Zealand](#)
- [High resolution drought forecasting](#)
- [River flow forecasting](#)

News

Te Kūwaha - Māori Environmental Research

Sharing knowledge with Māori communities and empowering Māori business with the latest science.



Te Kūwaha services

Māori worldviews are based on centuries of observation and anticipation of their physical and social environment and can be used to inform a wide variety of environmental research.



Te Kūwaha tools and resources

NIWA is constantly developing new tools and resources for use by specific stakeholders, communities, and schools.

- [Taonga Species Series](#)
- [Climate Change Vulnerability Assessment \(CCVA\)](#)
- [Trends analysis for selected indicators of Waikato River health and wellbeing 2010-2019](#)
- [Climate and Māori society](#)
- [Te Huringa ki te Rangi: Adapting to climate change](#)



Te Kūwaha research projects

Find out more about some of our Te Kūwaha-related work.

- [Cultural Keystone Species](#)
- [Maniapoto Cultural Assessment Framework](#)
- [The impact of non-native marine pests on our takutai moana](#)
- [Restoration and enhancement of piharau / kanakana / lamprey](#)

Rangi - weather and climate lessons for teachers

Developed for teachers, these lessons offer intermediate age students an engaging and interactive way to learn about Aotearoa's wild and mild weather and climate patterns.

* Education & training

Educational Resources

Science topics for students

Resources for teachers

Science to respond to our changing climate: teaching climate adaptation
Air aware

Rangi - weather and climate lessons for teachers

Lesson 1: An introduction to weather and meteorology
Lesson 2: Wind
Lesson 3: Weather forecasting
Lesson 4: Extreme weather
Lesson 5: Introduction to climate
Lesson 6: Climate drivers
Lesson 7: Climate in Aotearoa
Lesson 8: Climate and weather extremes
Lesson 9: Ngā Tohu o te Taiao - Māori environmental indicators

Rangi - weather and climate lessons for teachers



Rangi is an online weather and climate curriculum for teachers.

The lesson packages were co-developed between NIWA's climate researchers and meteorologists, and teachers and students from a group of West Auckland intermediate schools. Rangi (meaning weather or sky in te reo Māori) is designed to offer intermediate age students an engaging and interactive way to learn about Aotearoa's weather and climate, inspiring children to consider a future career in a STEM-related field. Rangi is supported by MBIE's [Unlocking Curious Minds](#) [contestable fund](#).

Each lesson contains a teaching resource package with theory, videos, activities, experiments and quizzes.



Lesson 1: An introduction to weather and meteorology



Lesson 2: Wind

Sometimes wind can feel like a bit of a



Lesson 3: Weather forecasting

Forecasting future weather starts by

Tohu were developed through close interactions with local environments and processes over time. Māori learned and developed a detailed knowledge of the links between the natural environment and changing weather conditions based on careful observations of daily, monthly and seasonal conditions.

These observations included the behaviour of certain birds, the blooming of certain trees and flowers, and the movement of certain stars.

Different across iwi and hapū, as part of separate Mātauranga-a-iwi, Mātauranga-a-hapū

NIWA has done extensive research on tohu across the country



Kākā (Native parrot)

Indicator:

Kākā begin acting up, twisting and squawking above the forest.

Expected outcome:

A storm is on its way.

Iwi/Region:

Ngāti Pare - NE North Island



Mangoroa (Milky way)

Indicator:

1. Mangoroa is curved.
2. Mangoroa is straight.

Expected outcome:

1. Bad weather is expected.
2. Fine weather is expected.

Iwi/Region:

Kāi Tahu - E South Island



Rāwaru (Blue cod)

Indicator:

Stones in the belly of the fish.

Expected outcome:

Bad weather is coming.

Iwi/Region:

Ngāti Koata - N South Island



Whakaari (White Island)

Indicator:

1. The plume lies to the left
2. The plume flattens, and the end breaks off.

Expected outcome:

1. Rainfall is expected
2. Watch out, extreme weather is expected.

Iwi/Region:

Te Whānau-a-Apanui - E North Island

Traditional Māori Weather and Climate Forecasting

Weather

Weather is the day-to-day state of the atmosphere, varying from minute to weeks (i.e., what you see out of the window each day and over the next few days).

	Name	Indicator	Expected outcome	Iwi/Region
	Kārearea Falcon	1.The kārearea screams in a fine day 2.The kārearea screams on a rainy day	1. It will rain the next day 2. It will be fine the next day	Ngāpuhi Taitokerau
	Pūkeko Swamp hen	Pūkeko head for higher ground	Imminent storm and flooding	Ngāti Wai Taitokerau
	Kākā Native parrot	Kākā begin acting up, twisting and squawking above the forest	A storm is on the way	Ngāti Pare Hauraki
	Ruru Morepork	The shrill cries of more than one ruru can be heard at night	Rainfall is approaching	Ngāti Pare Hauraki
	Ngā ngaru Waves	The sound of breaking waves up the valley	Approaching rainfall and inclement weather in expected	Te Roroa Taitokerau
	Pakakā Sea kelp	The furling and unfurling of hanging kelp	Rainfall or storm is expected	Ngāti Wai Taitokerau

Climate

Climate is the synthesis of weather, averaged over longer periods from months to years, and even centuries (e.g., this year it was colder than normal).

	Name	Indicator	Expected outcome	Iwi/Region
	Pipīwhararoa Shining cuckoo	The return of pipīwhararoa	The beginning of warmer weather	Ngāti Pare Hauraki
	Kūaka Godwit	The arrival of kūaka	The season of warming has begun	Ngāti Tūhoe Mātaatua
	Matuku-hūrepo Bittern	The continuing cry of the bittern as it moves around at night	A season of floods will follow	Ngāti Ruanui Taranaki
	Kōtuku Heron	The heron are plentiful in summer	Gales and a heavy winter will follow	Kāti Waewae Te Tai Poutini
	Puahou Five finger	1. The lower branches blossom first 2. The top branches blossom first	1. A warm, bountiful season will follow 2. A cold, unproductive season will follow	Ngāti Awa Mātaatua
	Pōānanga Clematis	Periodic blooming	A warm season lies ahead with gentle breezes	Te Whānau-ā-Apanui Te Tairāwhiti

Cultural Keystone Species

Cultural Keystone Species



Co-management and restoration of our freshwater taonga species

Ngāi Tahu

In 2016 Ngāi Tahu tribal governance identified the need to develop a strategy to give Ngāi Tahu direction in ensuring resilience in the face of the impacts of climate change.



Te Arawa

Completed by Te Urunga o Kea: Te Arawa Climate Change Working Group which is part of the wider Te Arawa Lakes Trust, and done in collaboration with Scion.

Launched on 1 October 2021 with comprehensive series of videos and wananga highlighting the goals and aspirations of Te Arawa.

Another widely active iwi in the climate space

Te Ara Ki Kōpū

Te Arawa Climate Change Strategy

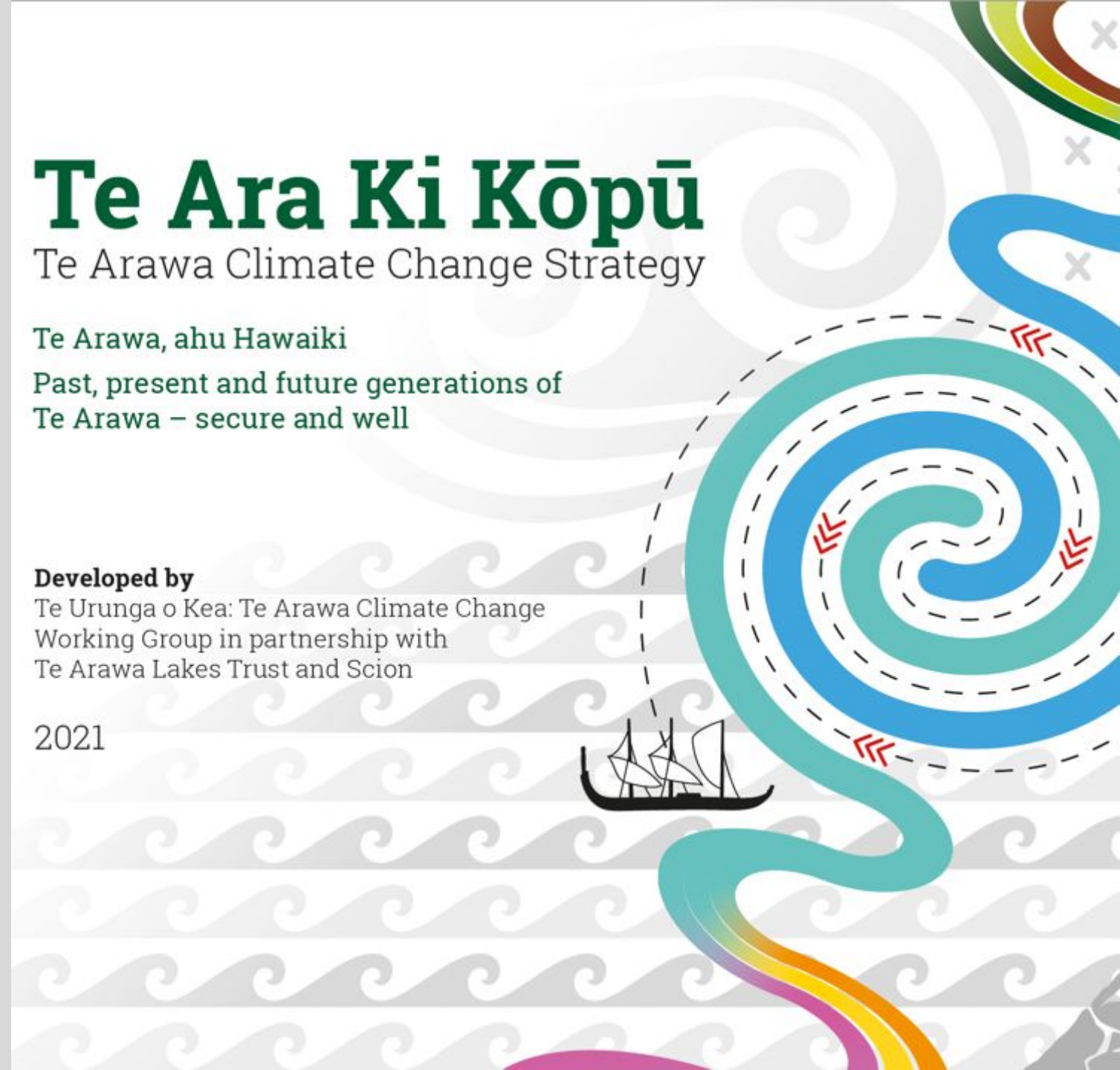
Te Arawa, ahu Hawaiki

Past, present and future generations of
Te Arawa – secure and well

Developed by

Te Urunga o Kea: Te Arawa Climate Change
Working Group in partnership with
Te Arawa Lakes Trust and Scion

2021



Whanganui District Council

Not iwi based but founded in core Māori values

Completed in 2021

'This strategy tells a story of the New Zealand European and Māori (te ao Māori) world views coming together to address climate change in a uniquely Whanganui way.'

**Te Rautaki
Huringa
Āhuarangi**

**Climate
Change
Strategy**



WHANGANUI
DISTRICT COUNCIL
Te Kaunihera o Rahe o Whanganui

Core Values and Considerations

- Focus on Whānau
- Focus on Whakapapa
- Focus on Rangatiratanga
- Focus on Kaitiakitanga
- Focus on Capacity Building
- Focus on Tikanga
- Focus on Mātauranga

Successful implementation of the Strategy will look like:

- Whānau, marae, hapū and iwi implementing action plans and mitigating the effects of climate change
- Whānau, marae, hapū and iwi having access to, and utilising the best information and technologies in their climate change response

WHĀNAU

Whānau needs and aspirations are central to tribal climate change response, with tribal resources targeted towards addressing fundamental challenges to kāinga whānau, the takiwā, maximising opportunities for whānau, and assisting whānau

climate change impacts on parts of the country and the world.

1

Mauri

The environment is at the centre of all decision-making and action.

An environment with an intact mauri will sustain healthy ecosystems, support kai harvesting, provide resource use and be a source of pride and identity to the people.

Mauri
life principle, life force, vital essence, special nature, a material symbol of life

Kaupapa
principles, our behaviours towards nature

The Rākau

Te tātū o te whāriki

ANCHORING THE FOUNDATION

Seven generations of Ngāi Tahu tūpuna fought for resolution of Te Kerēme, enabling all the opportunities we now have to lift and strengthen our people. We now have a new set of challenges, and we will do all we can to create a legacy for those whānau to come in response to the effects of climate change. We stand strong in the belief that amidst change and loss there is also hope, and opportunities to thrive.

The goals are numbered for referencing purposes only. This does not indicate any particular priority, as all goals are important. Inherent in each of these goals is the council's commitment (refer Appendix 1), or the life force of all living things to maintain or enhance using **kaitiaki**⁵ practices and

Whāinga	Goals
1 <i>Ka mahi tahi te Kaunihera me ētehi atu ki te whakaiti i te tapuwae waro o tō tātau rohe</i>	The council develop and works collaborative partners to reduce carbon footprint
2 <i>Mā tātau katoa e whai tikanga i ngā hurihuringa āhuarangi</i>	Everyone participate in addressing climate change
3 <i>Ka whakatauiratia e te Kaunihera ngā mahi tika ki te whakaiti i tōna ake</i>	The council model and encourage good practice in terms of reducing its carbon footprint as much as practicable and applying a climate change lens to all council decision-making. Others will be encouraged to do the same.

Kia mātau Education

We are committed to learning and sharing our knowledge with others

Ko te manu e kai ana i te miro, nōna te ngahere; ko te manu e kai ana i te mātauranga, nōna te ao (nā Te Kere Ngātāierua)

The bird who eats from the miro tree owns the forest; the bird who eats of the tree of knowledge owns the world



BIODIVERSITY

Tikanga
customary practice, law and learnings

Tikanga

The council will lead by example, role modelling good practice in terms of reducing its carbon footprint as much as practicable and applying a climate change lens to all council decision-making. Others will be encouraged to do the same.

As the trunk of the tree extends towards the sky, we acknowledge the importance of leading by example. As the branches weave together, we acknowledge the interconnectedness of relationships to deliver this strategy.

- Ngāi Tahu continue to endorse the efforts of other iwi and jurisdictions
- Maintain momentum on the necessary actions to implement this Strategy

lakes, rivers, wetlands and estuaries are abundant with our taonga species.

The role of our wetlands and native forests are

WATER SECURITY & SOVEREIGNTY

We have access to clean drinking water and abundant

resources.

inced and protected in the spirit of Te Tiriti o and moana

al learn

Te Urunga o Kea

The role of leadership cannot be underestimated at this time. Te Urunga o Kea will reprise the role of Kearoa by navigating Te Arawa through climate change. Whānau, hapū and iwi representatives will:

- Lead Strategy implementation.
- Guide, influence and empower Te Arawa whānau, hapū and iwi to empower our way of knowing.
- Ensure that the voice of Te Arawa is heard – within our rohe, nationally and internationally – in relation to climate change.

Short Term Actions by 2025

Government's Climate Commission and change response. enhance regional and local government participation

Long Term Actions by 2050

on Settlement assets and tribal lands and assets, lands and resources to be transferred

Heritage Sector

Action 5.8: Support kaitiaki communities to adapt and conserve taonga/cultural assets

Action 3.26: produce guidance for disaster risk management for cultural heritage

Action 3.27: develop a framework for assessing exposure and vulnerability of cultural assets/taonga to climate change

Action 7.1: research how cultural heritage contributes to community wellbeing and climate change adaptation



Manatū Taonga | Ministry for Culture & Heritage

Climate change risks and adaptation tools for Aotearoa New Zealand's cultural heritage

Prepared for: Manatū Taonga | Ministry for Culture & Heritage

June 2023