HAWKE'S BAY
REGIONAL COUNCIL
TE KAUNIHERA Ā-ROHE O TE MATAU-A-MĀUI

Minutes of a meeting of the Environment and Integrated Catchments Committee

Date: Wednesday 20 August 2025
Time: 11.30am

Venue: Council Chamber
Hawke's Bay Regional Council
159 Dalton Street
NAPIER

Present:
Cr S Siers – Chair
Cr D Roadley – Deputy Chair
Cr W Foley *(online)*
Cr X Harding
Cr T Hokianga *(from 11.34am)*
K Kawana – Māori Committee rep *(online)*
Cr N Kirton
Cr C Lambert
Cr J Mackintosh *(online)*
M McIlroy – Regional Planning Committee rep *(online)*
Cr H Ormsby
Cr J van Beek
Cr M Williams *(online)*

In Attendance:
N Peet – Chief Executive
T Munro – Te Pou Whakarae
R Wakefield – Group Manager Integrated Catchment Management
R Hollyman – Governance Advisor
S Harper – Acting Manager Science
K Kozyniak – Team Leader Air & Land Science
J Albuquerque – Coastal Specialist
K Barichievy – Scientist Land
J Copsey – Scientist – Terrestrial Ecologist
T Wilson – Scientist Groundwater
S Haidekker – Principal Scientist Freshwater Quality & Ecology
A Glockner – Scientist, Marine & Coasts
G Flowers – Scientist, Marine & Coasts
A Eaves – Senior Scientist Land
T Gordon – Science Translator & Funding Coordinator
J Kidd – Air Quality Scientist
J Townshend – Manager, Catchment Operations
A Beatie – Catchment Management Lead – Biodiversity
N de Burgh – Senior Biodiversity Advisor
H Payne – Biodiversity Advisor

1. Welcome/Karakia /Apologies

The Chair welcomed everyone to the meeting. There were no apologies

2. Conflict of interest declarations

There were no conflicts of interest declared.

3. Confirmation of Minutes of the Environment and Integrated Catchments Committee held on 9 April 2025

EICC166/25 **Resolution**

Minutes of the Environment and Integrated Catchments Committee held on Wednesday, 9 April 2025, a copy having been circulated prior to the meeting, were taken as read and confirmed.

Roadley/Ormsby
CARRIED

4. Public Forum

There were no speakers.

5. Three-yearly State of the Environment report

Richard Wakelin introduced the paper, acknowledging everyone who contributed to the report, before handing over to Simon Harper (HBRC acting Science Manager) who gave an overview. A presentation (**Attachment 1**) was shared by the team to highlight findings.

- State of the Environment (SOE) reporting helps track environmental changes and assess the impact of resource use, informing regional planning and management decisions.
- Hawke's Bay undertakes a comprehensive SOE analysis, the frequency and format of reporting are under review to improve efficiency and effectiveness.
- This edition is broken down by sections, including a new dedicated chapter on Mātauranga Māori led by the Māori partnerships team, and coverage of Cyclone Gabrielle's environmental impacts.
- Around 100 recommendations were made, ranging from ongoing monitoring to community-led initiatives. These will require prioritisation and funding decisions by Council, alongside a review of science strategy and integration of Mātauranga Māori.
- Dr Kathleen Kozyniak spoke about Cyclone Gabrielle and other extreme weather events over the past three years have highlighted the critical role of climate change in environmental resource management, revealing intensifying trends in rainfall, temperature, and emissions, and prompting recommendations to strengthen monitoring, adaptation, and mitigation efforts across Hawke's Bay.
- Dr João Albuquerque discussed Coastal erosion in Hawke's Bay being driven by northward sediment drift from prevailing wave patterns, with sediment sources including storm events and cliff erosion; monitoring shows accretion at sandy beaches near Mahia and Cape Kidnappers, and erosion from Clifton to Tangoio, highlighting the importance of long-term coastal cross-section data and understanding sediment dynamics for effective coastal asset management.
- Dr Kurt Barichievy discussed soil quality monitoring, which shows declining carbon levels in cropping areas and phosphorus imbalances across land uses, while suspended sediment monitoring supports evaluating land management interventions, with recommendations to expand testing and improve sampling methods.
- Jessica Copsey further added that wetland health is declining due to persistent pressures, unmanaged forests face understory collapse from browsing, and post-cyclone bird surveys

reveal significant population losses—prompting calls for habitat restoration, predator control, and improved coastal and dune management.

- Simon Harper spoke about how groundwater accounts for 89% of Hawke's Bay's water consents, with most metered use concentrated in the Heretaunga and Ruataniwha Plains; monitoring of river flows and groundwater levels reveals region-wide variability, long-term declines linked to pumping, and the critical role of data in managing allocation, ecosystem health, and water security.
- Tom Wilson added that groundwater quality in Hawke's Bay is generally good, with isolated issues including elevated arsenic, manganese, and nitrate levels—particularly in shallow wells—highlighting the need for expanded monitoring, vulnerability assessments, and solute modelling to better understand land use impacts and guide future water management strategies.
- Sandy Haidekker identified that monitoring has shown that temperatures have been higher than normal with monitored rivers, lakes, and coastal sites in Hawke's Bay showing elevated nutrient levels, poor ecological health, and habitat degradation—highlighting the need for riparian restoration, fish passage improvements, and coordinated land-to-sea management to support freshwater and marine biodiversity.
- Georgina Flowers advised that Hawke's Bay's coastal and estuarine environments are under pressure from elevated nutrients, sedimentation, and poor water quality—particularly following high rainfall events like Cyclone Gabrielle—resulting in reduced biodiversity and stressed benthic communities, with recommendations focused on reducing land-based inputs and improving ecosystem resilience.
- Andrea Glockner added that the Hawke's Bay's marine environment shows resilience in intertidal and subtidal habitats, with healthy macroalgae and seagrass beds in some areas, but remains vulnerable to climate change and sedimentation—highlighting the need to reduce sediment inputs, continue habitat monitoring, and strengthen coordinated land-to-sea management.
- Tony Gordon shared that the Māori partnerships team has developed a chapter on Mātauranga Māori for the State of the Environment report, highlighting how traditional Māori knowledge systems—such as the Maramataka (Māori lunar calendar) and Matariki—can be integrated with Western science to guide environmental restoration and planning efforts.
- Jeremy Kidd spoke about Hawke's Bay's air quality which has improved in Napier but remains a concern in Hastings and Awatoto, with PM10 exceedances still occurring and PM2.5 levels frequently breaching World Health Organization guidelines—highlighting the need to reduce wood burning and particulate emissions to protect public health.
- Ashton Eaves discussed Land use monitoring and change modelling in Hawke's Bay which shows pastoral farming remains dominant, while urban expansion—particularly greenfield development—is encroaching on highly productive land, highlighting the need for improved planning, national land use classification, and tools to track unsustainable land use practices.
- Andrea Glockner spoke about recreational water quality with results showing that across 37 monitored sites in Hawke's Bay, marine beaches were suitable for swimming 93% of the time, while freshwater sites met suitability standards 80% of the time—though estuarine locations showed poorer conditions, with some permanently signposted due to health risks, highlighting the need for clearer targets and ongoing improvement efforts.

The meeting adjourned at 1.27pm and reconvened at 1.53pm with Jock Mackintosh having left during the break.

- The team had final discussions on Catchments with particular focus on concerns with the Porangahau estuary remaining non-compliant for shellfish gathering and swimming due to persistent contamination, with councillors requesting that source tracking and investigation be carried out to identify pollution origins and enable recovery.

- It was noted that the bulk of the recommendations in the report currently lack budget allocation, prompting discussion about prioritising environmental actions in the upcoming long term plan and ensuring community values guide investment decisions.
- Councillors emphasised the critical importance of the science and monitoring work in managing air, water, and land resources, advocating for continued use of the report as a reference for future policy and planning.

EICC167/25 **Resolution**

That the Environment and Integrated Catchments Committee receives and notes the *Three-yearly State of the Environment report*.

Roadley/Ormsby
CARRIED

8. Deputation from Heidi Stiefel – Predator Free Napier Hill

Heidi Steifel presented slides (**Attachment 2**), highlighting:

- A growing community-led initiative that aims to restore native wildlife across Hawke's Bay by removing introduced predators (rats, possums, stoats) builds on successful local projects like Predator Free Napier Hill and is expanding through school programmes, neighbourhood trap groups, and collaboration with Cape Sanctuary.
- The initiative emphasises grassroots involvement, with volunteers setting up and maintaining trap lines, supported by local organisations and schools. A working group has formed to develop a regional strategy, with seeks HBRC support through advocacy, staff coordination, and integration with catchment and biodiversity programmes.
- Rachel Ward showcased Cape Sanctuary's success in restoring native habitats and species through a large, skilled volunteer base. Volunteers are empowered with flexible roles and leadership opportunities, contributing to species monitoring, habitat restoration, and new initiatives like penguin microchipping.
- Both presenters stressed the importance of building a connected predator-free corridor across Hawke's Bay, linking Cape Sanctuary to surrounding areas. They called for stronger collaboration with mana whenua, better data collection, and a regional coordinator to support and scale community conservation efforts.

6. Continuous Suspended Sediment monitoring and reporting on Hawke's Bay waterways

Richard Wakelin introduced the item and Dr Ashton Eves gave a presentation (**Attachment 3**) highlighting:

- The suspended sediment monitoring programme uses ISCO auto-samplers to measure sediment loads in waterways, helping evaluate the effectiveness of erosion control interventions and guide future land management strategies.
- The cyclone destroyed six of the 20 active monitoring sites, significantly disrupting data collection. Only five sites remain operational, with insurance recovery pending redeployment of remaining devices.
- Pre-cyclone sediment yield averaged 187 tonnes/hectare/year; post-cyclone data showed sharp increases in some catchments (e.g. Whatuku Stream), while others like Tukituki showed reductions due to rainfall variability.
- Plans include reinstating high-yield sites, integrating soil physical characteristics, and aligning monitoring with the science review and long-term planning to better target erosion-prone areas and assess intervention outcomes.

Thompson Hokianga left at 3.06pm

- Emphasis was placed on balancing detailed measurement with actionable insights, prioritising cost-effective interventions (e.g. riparian planting), and exploring new

technologies like turbidity sensors and AI to improve monitoring efficiency.

EICC168/25 **Resolution**

That the Environment and Integrated Catchments Committee receives and notes the *Continuous Suspended Sediment monitoring and reporting on Hawke's Bay waterways* staff report.

Harding/Roadley
CARRIED

7. Biodiversity Programmes update

Annabel Beatie, Holly Payne and Natalie de Burgh spoke to the item and shared a presentation (**Attachment 4**) highlighting:

- The initiative focuses on protecting high-value habitats through deer fencing and ecosystem restoration, with recent successes including Otupua (460 ha of beech forest), an alluvial forest near Wairoa, and the 100 Acre bush near Puketitiri.
- Biodiversity work is supported through partnerships with catchment groups, schools, QEII Trust, DOC, and Biodiversity Hawke's Bay. Programmes include fish passage restoration, urban biodiversity enhancement, and community-led predator control.
- New Zealand's biodiversity is globally unique but under severe threat, with over 80% of native birds and 94% of reptiles at risk. Ecosystem services such as flood mitigation, water quality, and carbon storage are directly linked to biodiversity health.
- The team faces high demand and limited resources, with 51 unfunded projects in the pipeline. Collaboration is key, but some funding sources (e.g. the DOC-administered Hawke's Bay Nature Fund) exclude parts of the region due to administrative boundaries.
- Councillors emphasised biodiversity as a top priority, advocating for stronger integration across council workstreams, improved support for community efforts, and inclusion of biodiversity in councillor induction and long-term planning.

EICC169/25 **Resolution**

That the Environment and Integrated Catchments Committee receives and notes the *Biodiversity Programmes Update* staff report.

Kirton/Ormsby
CARRIED

Closure:

There being no further business the Chair declared the meeting closed at 3.53pm on Wednesday 20 August 2025.

Signed as a true and correct record.

Date: 1 December 2025 **Chair:** Sophie Siers **Chief Executive:** Nic Peet

Attachment 1: Item 5 - Three-yearly State of the Environment report:

State of the Environment Report

July 2021 to June 2024

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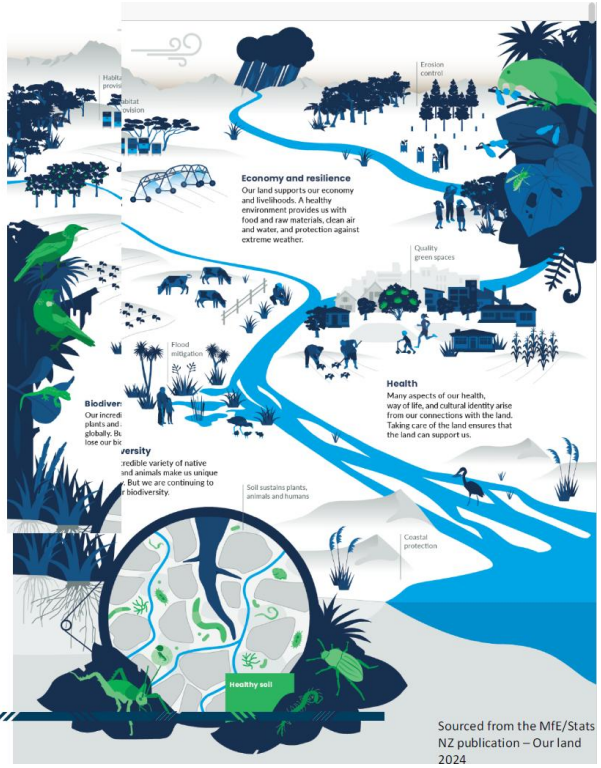

Sourced from the MfE/Stats NZ publication – Our land 2024

What is it, and why do we do it?

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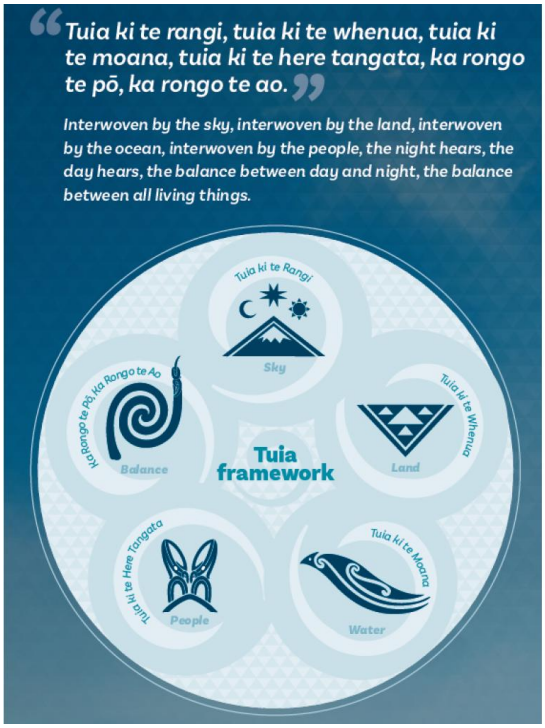

What's new in our report?

- A chapter on **Mātauranga Māori**
- Reorganised the way our State of the Environment chapters are presented by framing them around a whakataukī
- Dedicated chapter on Cyclone Gabrielle

Overview – good news stories

- **Air quality** improved since 2006
- **Riparian protection** – Before Cyclone Gabrielle, about half of surveyed waterways were stock-excluded
- **Some upland freshwater ecosystems** recovering post Gabrielle
- Better understanding of our **surface and groundwater resources**
- **Freshwater and marine** swimming sites are mostly good

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Overview – room for improvement

- >20m tonnes of sediment entered Hawke Bay after Cyclone
- Most wetlands declined in condition
- Many shallow lakes in poor condition
- Lowland rivers and streams impacted by sediment, warm temperatures and habitat loss

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The future – turning recommendations into actions

About 100 recommendations:

BAU from current budgets

Communities to action some

New work for us: LTP process and other funding sources

Determining our role in mātauranga māori

Review our strategy and processes

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Tuia ki te rangi
Cyclone Gabrielle, climate and climate change
Kathleen Kozyniak
HAWKES BAY
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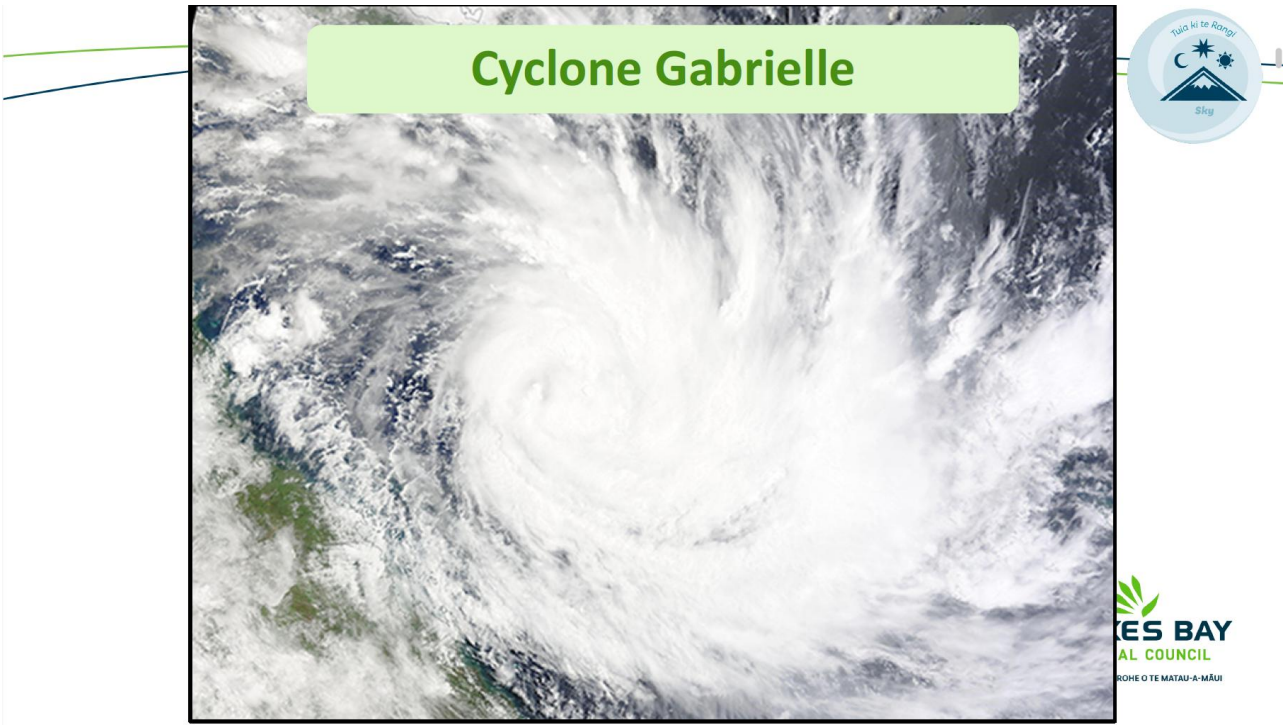
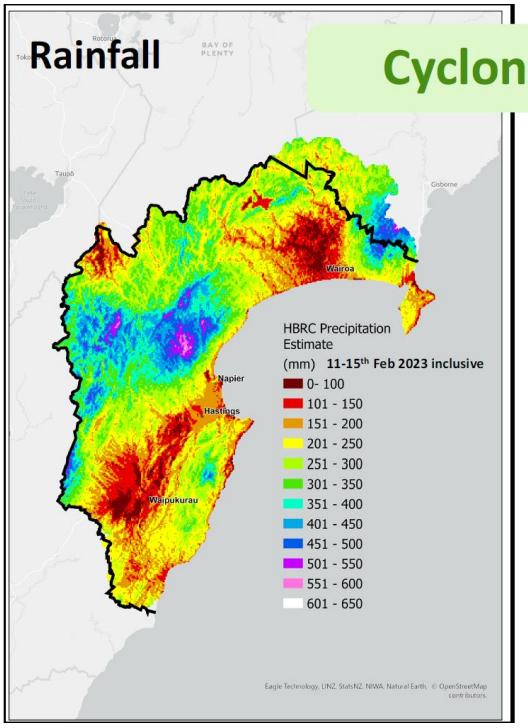

Cyclone Gabrielle



Cyclone Gabrielle - Water

Cyclone Gabrielle - Land

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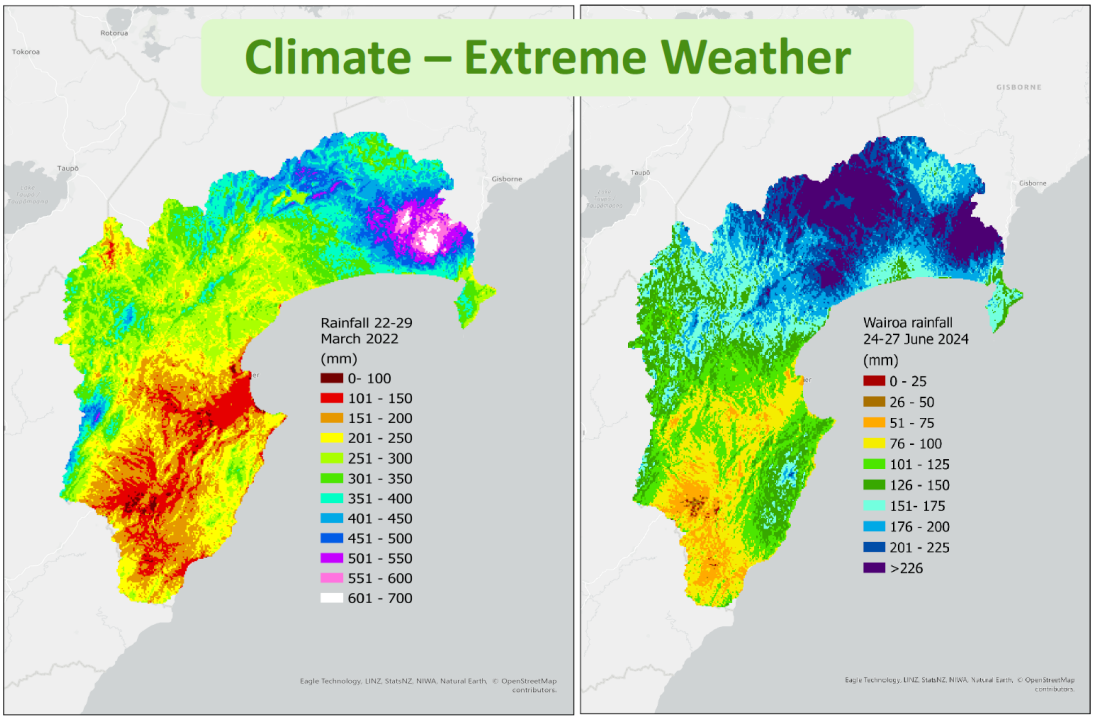
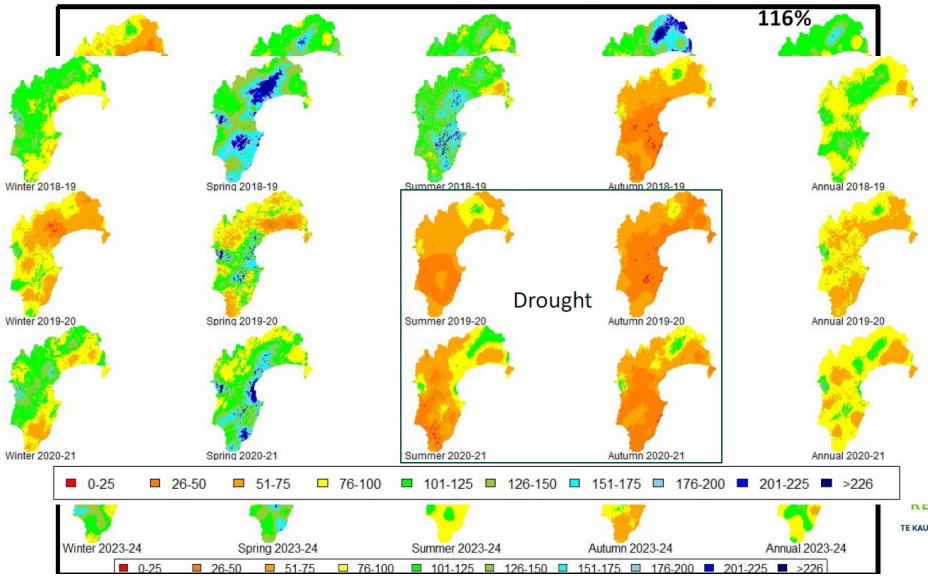
Climate – Extreme Weather



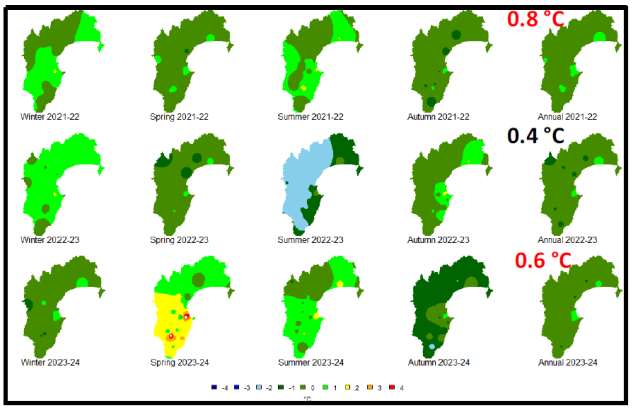
Climate - Rainfall

Seasonal and annual rainfall – percentage of long term average

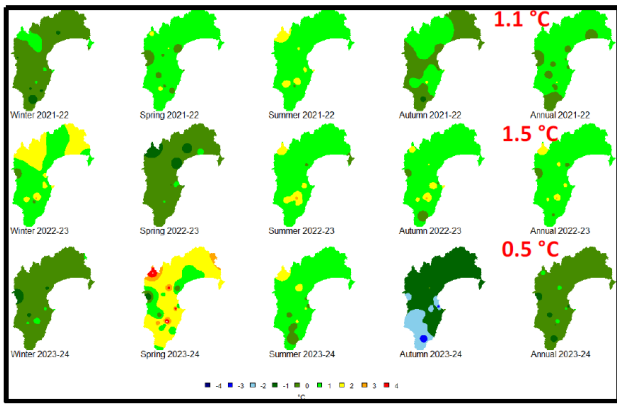


Climate - Temperature

Seasonal and annual temperature – difference from long term average



Maximum Temperature



Minimum Temperature

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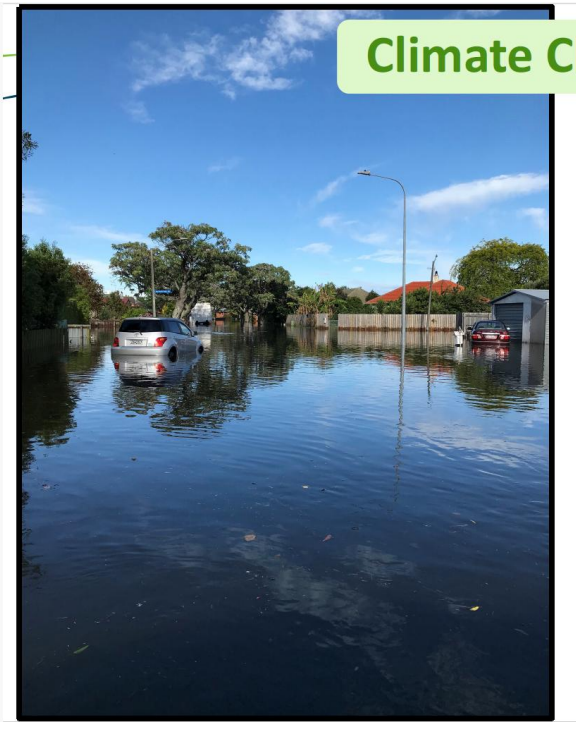
Climate Change - Projections

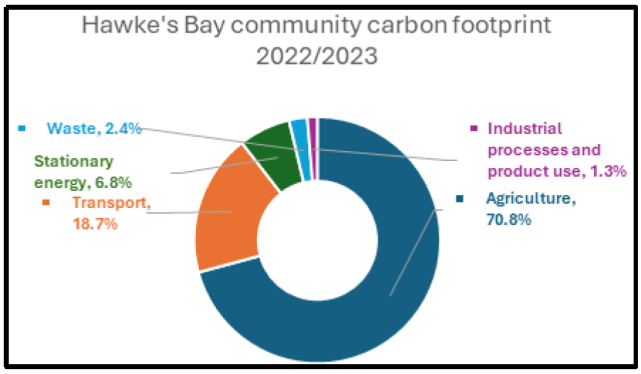


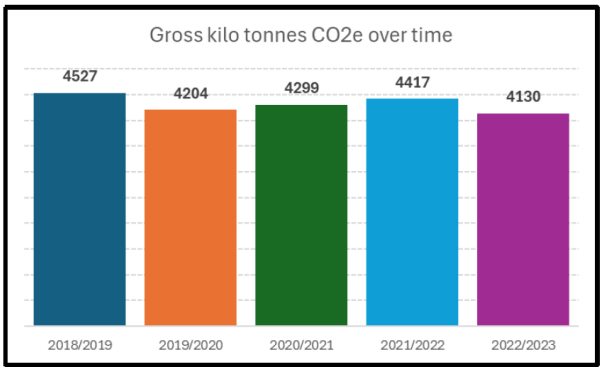
Temperature ↑

Rainfall ↓

Extreme weather ↑

Climate Change - Emissions





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Climate & Climate Change

Recommendations

- **Reduce and monitor the region's GHG emissions** - continue updating the region's GHG emissions inventory, develop a GHG emissions reduction plan and periodically review the region's climate risk assessment.
- **Maintain climate monitoring** – continue supporting HBRC's network to ensure its longevity and spatial coverage.
- **Improve knowledge of extreme events** – this includes connections between rainfall, soil moisture and river flows, and the influence of climate modes and atmospheric rivers.
- **Continue adaptation planning -** particularly mitigating the impacts of high intensity rainfall of 60 mm/h or more and antecedent conditions. Stay abreast of climate trends and climate change projections.

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Questions

Tuia ki te rangi

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Tuia ki te whenua

Land science, terrestrial ecology and coastal processes

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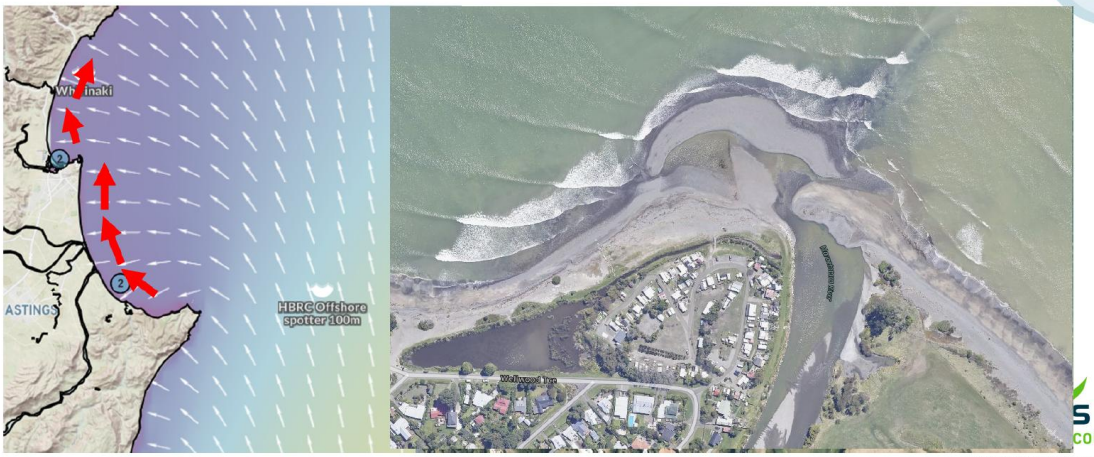
Coastal Processes

Sediment transport and budget sources

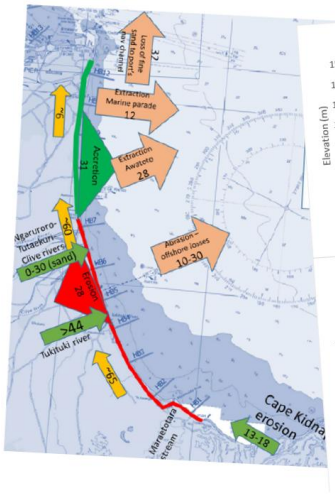


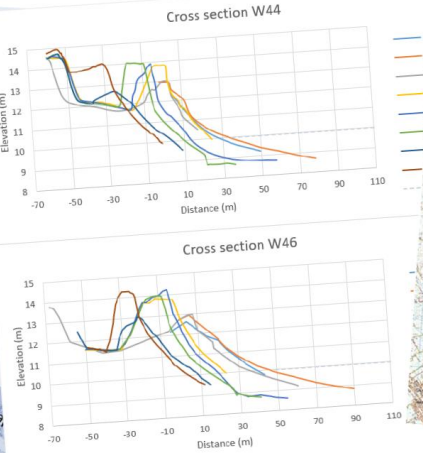
Coastal Processes

Sediment transport and budget losses

Coastal Processes

Sediment budget estimates and coastal monitoring

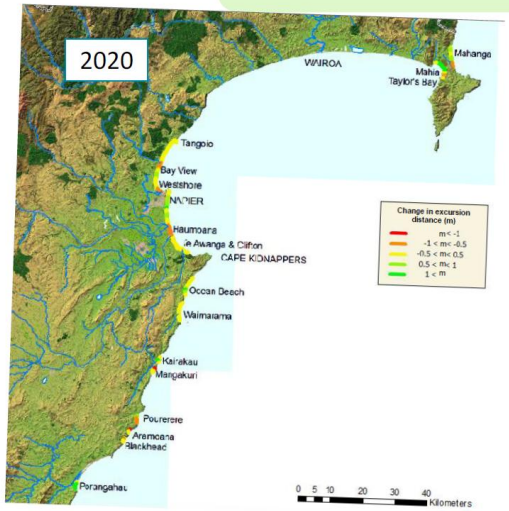


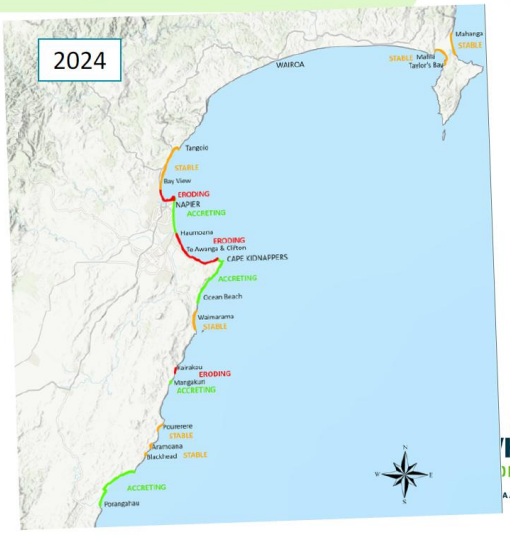


Reference name	Profile	Shoreline change rate trend (m/y)
Clifton	HB1	-1.31
Te Awanga	HB2	0.34
Haumoana	HB3	-0.17
Tukituki river	HB4	-1.16
East clive	HB5	-0.07
Ngaruroro	HB6	-1.09
Awatoto	HB7	-0.78
Marine parade	HB8	0.38
Marine parade	HB9	0.86
Marine parade	HB10	1.46
Marine parade	HB11	0.92
Marine parade	HB12	-0.02
Westshore	HB13	-0.26
Napier Airport	HB14	0.14
Ferguson St.	HB15	0.50
Fannin St	HB16	0.16
Bay View	HB17	0.31
Le Quesne Rd	HB18	-0.50
Eskdale	HB19	-0.41
Whirinaki Rd	HB20	0.03
State Hwy	HB21	1.28
State Hwy	HB22	-0.42
Tangoio	HB23	-0.53

Coastal Processes

Coastal monitoring results





Tuia ki te whenua

Coastal Processes

Context

- La Niña to start– more easterly (onshore) wind flows.

Key takeaways

- No changes in the long-term erosion/accretion trends.
- About 4 significant swell events that may have caused damage to property (not confirmed yet).

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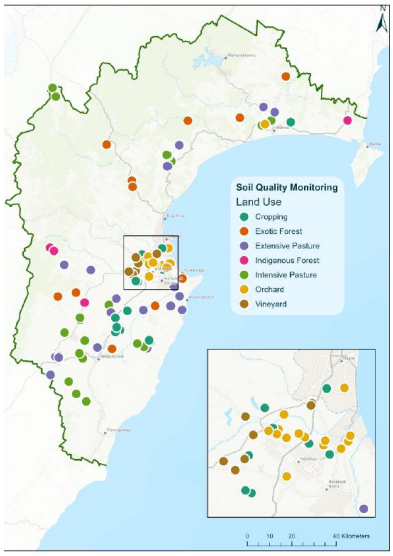
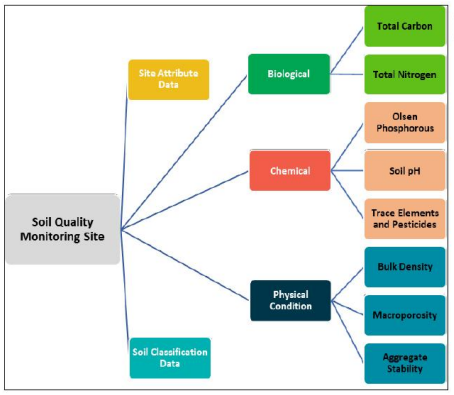
Soil Quality Monitoring: Programme Overview





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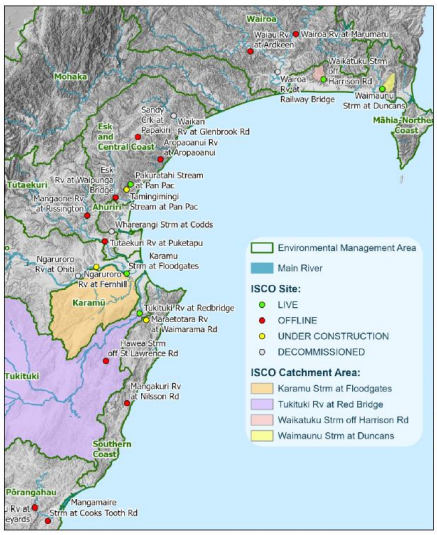
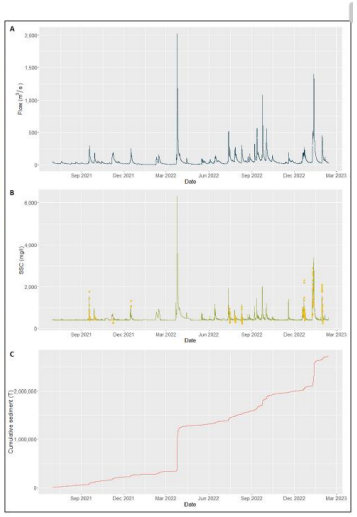
Suspended Sediment Monitoring: Programme Overview



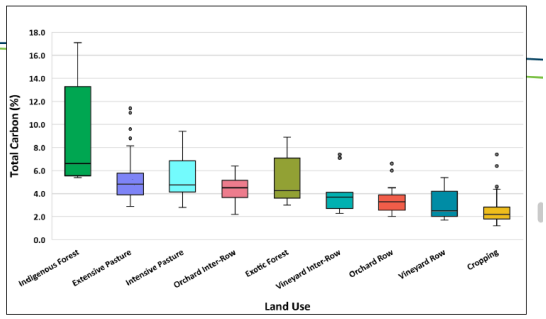


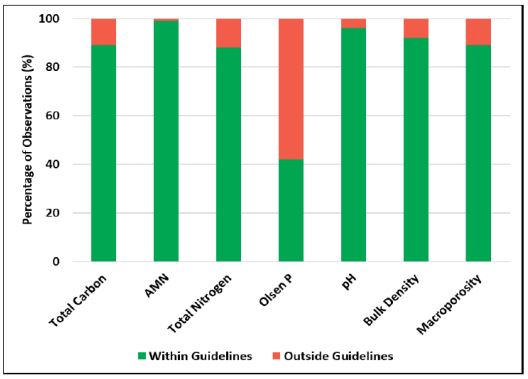
Soil Quality Monitoring: Key Results

- Soil carbon has decreased, decrease of 1.1% for cropping sites.
- Positively, over 85% of soil observations within guidelines.
- Only 42% within recommended guidelines for Olsen Phosphorus (P).

  28% were below P Guidelines

  30% exceeded





Actions and Recommendations

Soil Quality Monitoring:

- Resumption of the monitoring programme (Actioned).
- Introduction of **new soil tests and additional monitoring sites** (Medium Priority).

Suspended Sediment Monitoring:

- The **reinstallation** of abandoned sites in key areas (High Priority).
- **Installing turbidity sensors** at sites rather than relying on flow triggers (Increase accuracy, reduce variance) (Medium Priority).
- SSC measurements need to cover the **full range of the hydrograph** (low and mean flows) will help to determine background SSC (Medium Priority).

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Tuia ki te whenua

Terrestrial Biodiversity

Wetland monitoring programme

- Wetland condition – 18/33 declined
- Cyclone added to decline but not sole contributor
- Wetland setting and pressures on the system determine recovery

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Outcome (forest) monitoring

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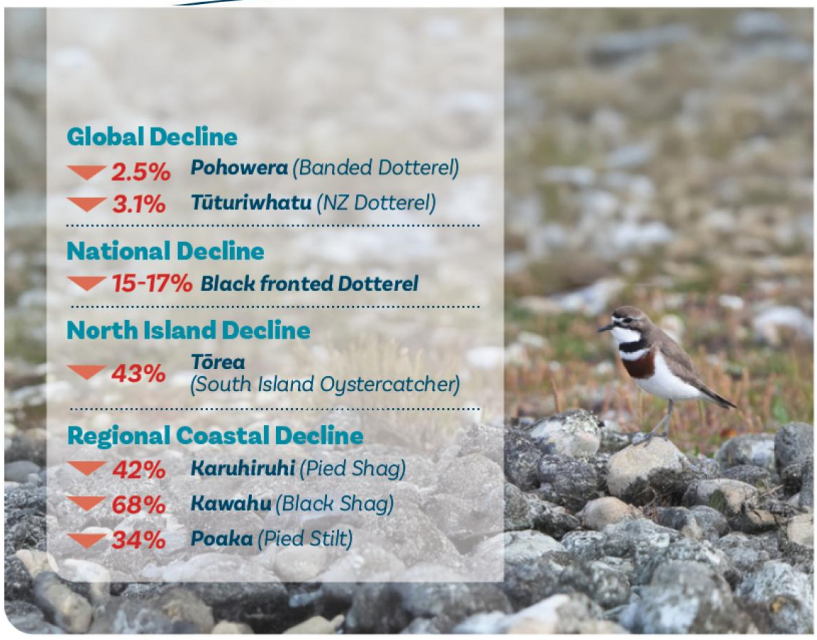

River and Coastal Bird Surveys

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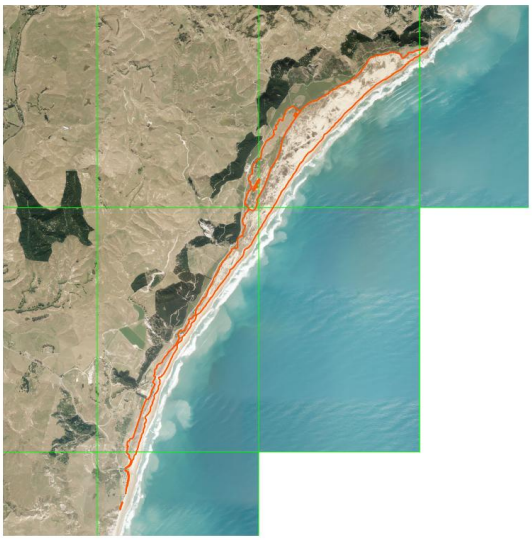
Dune monitoring



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Questions

Tuia ki te whenua

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Tuia ki te wai

River flows and groundwater

Simon Harper, Todd Redman & Tom Wilson

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Why monitor river levels?

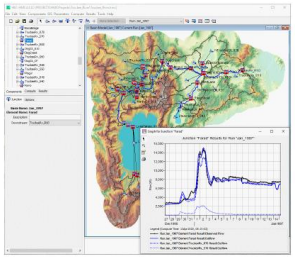
- To help guide decision-makers on how much surface water can be taken from our rivers and streams

HOW?

Low flow metrics

High flow metrics

Security of supply metrics



Surface water models

What is assessed in this report?

- Snap shot of flow conditions between July 2021- June 2024
- Peak flow estimates and flood frequency analysis for Cyclone Gabrielle
- High flow and low flow metrics
- Trends for annual mean flows and 7-day annual low flow

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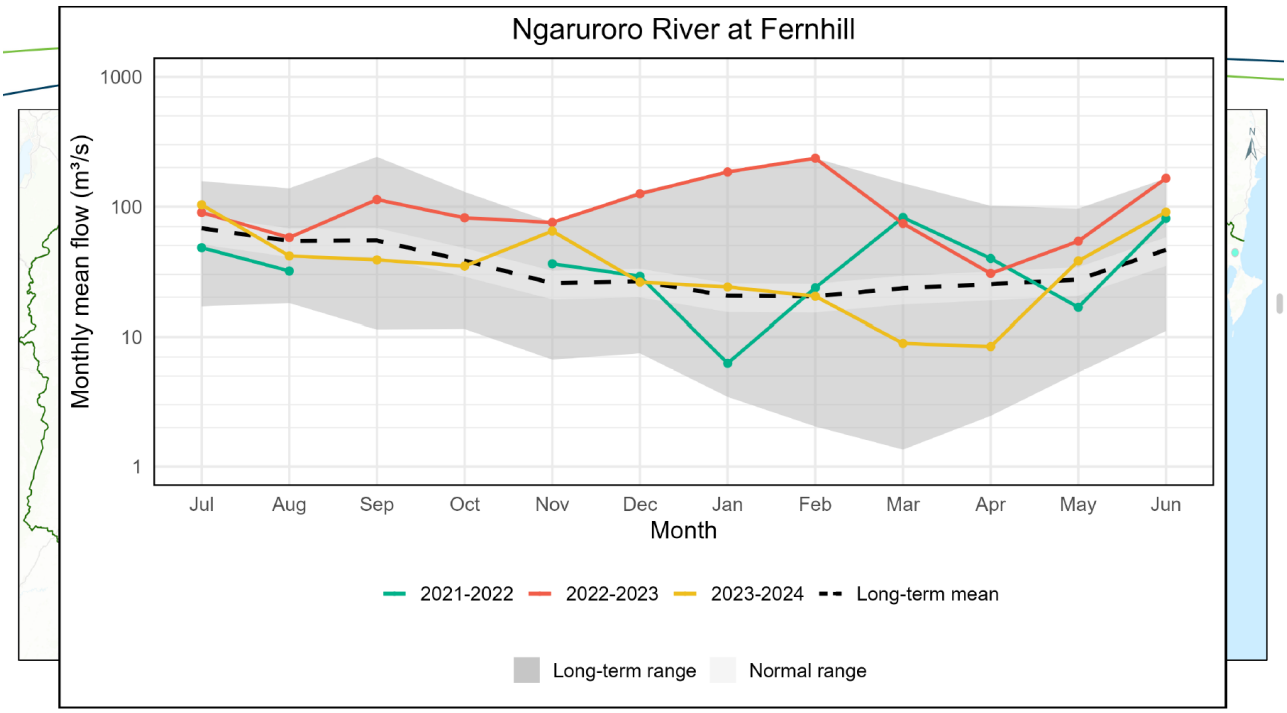


Why monitor groundwater levels?

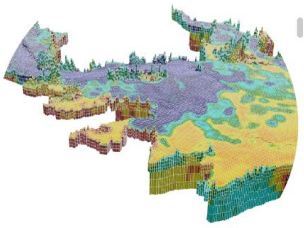
- To help guide decision-makers on how much groundwater can be taken from our groundwater systems

HOW?

Drawdown (dry wells)

Stream flow depletion

Seawater intrusion



Groundwater models

What did we assess?

- Snap shot of groundwater level conditions between July 2021- June 2024
- Assessment of long-term trends 1984-2024
- Water metered use reported for the first time

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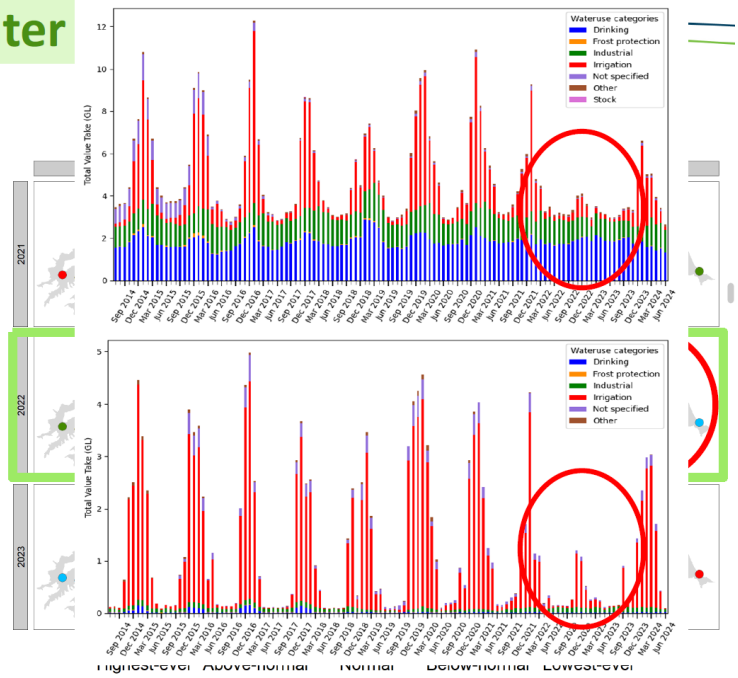
Groundwater

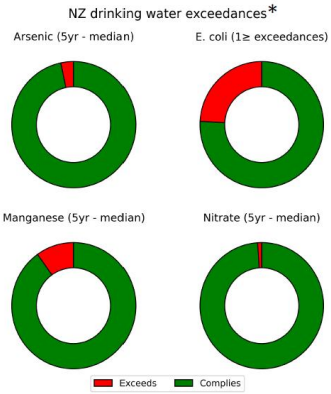
Key highlights

- 2022-2023 stands out as an exceptionally wet year
- levels were particularly high during Summer and Autumn months
- Primarily due to high rainfall and reduced groundwater use

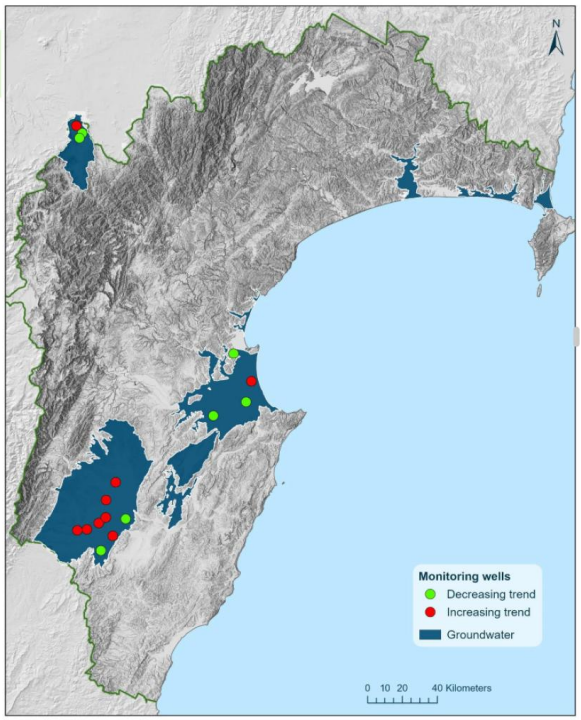


Groundwater Quality

- No exceedances of trace metals or pesticides.
- Groundwater generally suitable, though some areas are vulnerable to contamination.
- Nitrates increasing over time – particularly in RP



*SOE wells not used for drinking water



Recommendations

- Continue developing numerical models of groundwater and surface water systems to evaluate whether plan limits are appropriate and likely to succeed under current and future land uses.
- Expand surface water monitoring in areas of strong surface–groundwater interaction and in catchments with high-flow allocation.
- Increase groundwater monitoring resourcing to support periodic synoptic sampling of groundwater resources – particularly in less intensively monitored areas.
- Update groundwater vulnerability assessments to reflect current land use, water quality data, and aquifer system understanding, ensuring contaminant risk evaluations remain robust and fit for purpose.
- Expand isotope or tracer sampling to improve understanding of residence time, recharge sources, and contaminant lag across key aquifers

Questions?

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Tuia ki te wai

Water quality & ecology – Freshwater & Marine

Sandy Haidekker, Georgina Flowers & Andrea Glockner

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Water Quality and Ecology

Tuia ki te wai

Water quality & ecology – Freshwater & Marine

Sandy Haidekker, Georgina Flowers & Andrea Glockner

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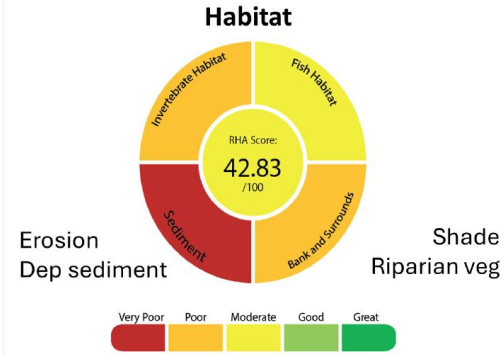
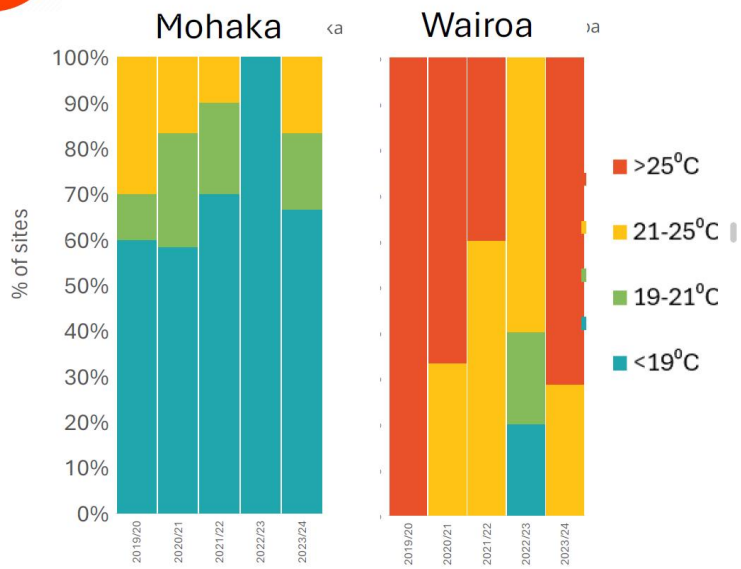
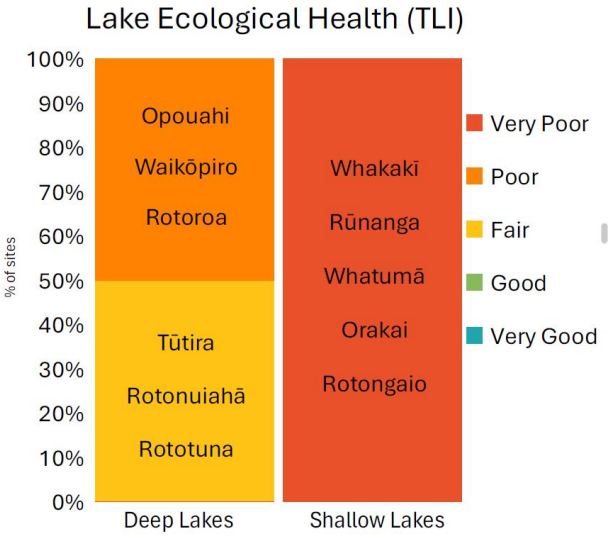
Water Quality and Ecology

Water Temperature



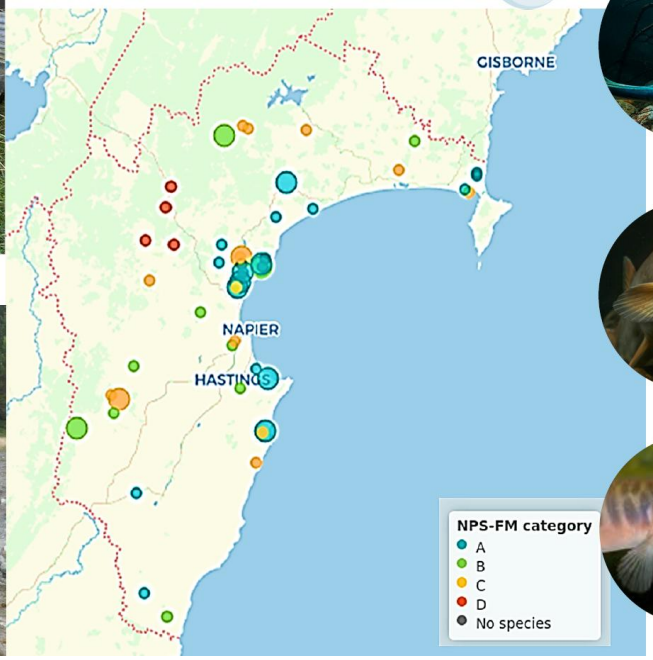


Lakes



Tamingimingi Stream
Pākuratahi catchment

Freshwater Fish



lamprey

Shortjaw
Kōkopu

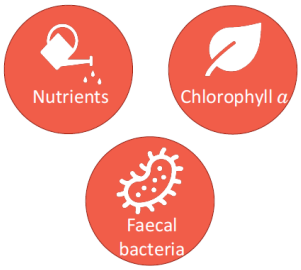
Banded
Kokopu

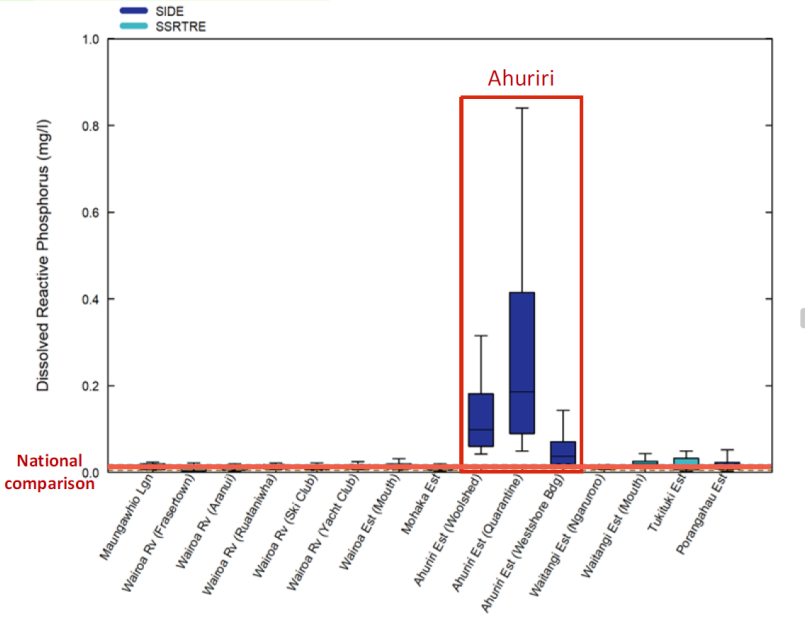
Recommendations

- **Continue fencing, planting & erosion control** - reduce thermal stress, faecal contamination and sediment
- **Target nutrient enrichment –** address region wide P enrichment and N hotspots causing ecological degradation
- **Support native fish** - improve fish passage, protect critical habitats (spawning areas) for native fish and kākahi
- **Reduce lake nutrients** - lake specific measures, restore native macrophyte communities

Stressors on coastal water quality

- Elevated nutrients across estuaries
- High phosphorus in Ahuriri Estuary
- Poor water quality at Awatoto and Haumoana





Stressors on coastal water quality

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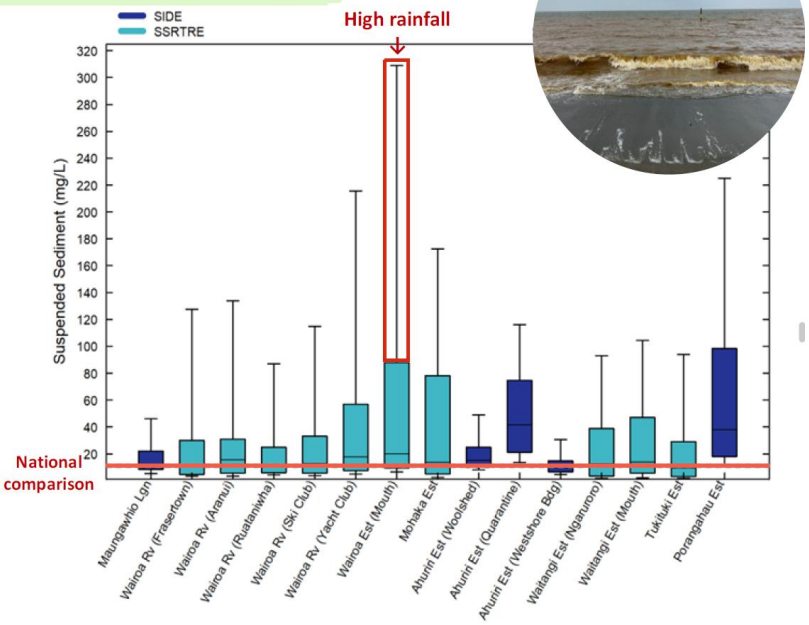
- Poor water quality at Awatoto and Haumoana
- Reduced water clarity in estuaries
- High rainfall increases sediment and nutrients



Stressors on coastal water quality

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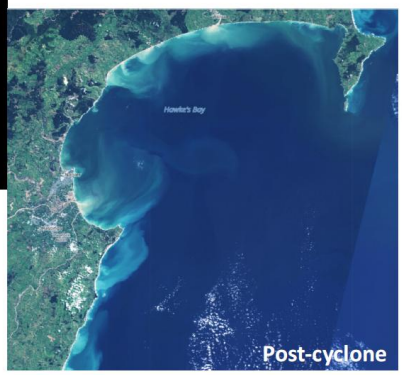
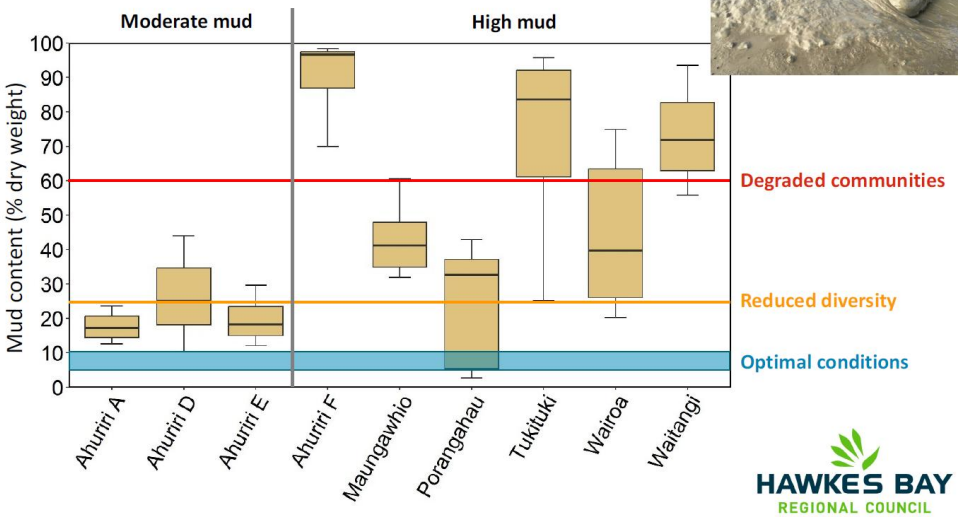
- Reduced water clarity in estuaries
- High rainfall increases sediment and nutrients
  - e.g., Cyclone Gabrielle



Estuarine Ecology



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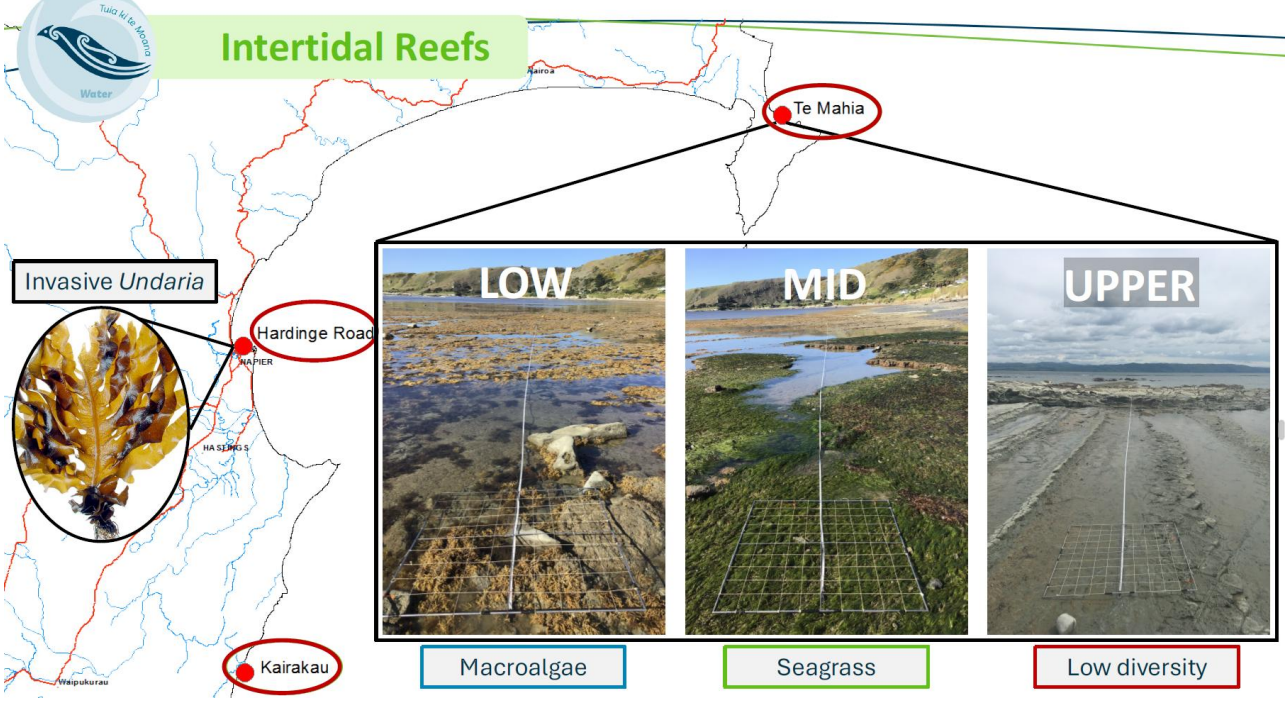
Intertidal Reefs



Subtidal Habitats

Wairoa Hard

- Predominantly flat, sandy and cobble substrates
- Higher foliose and coralline algae cover
- Tubeworms, shellfish, sponges

Clive Hard

- Complex topography, boulders and rock outcrops
- More canopy-forming macroalgae
- Fish, habitat-building sponges, crayfish

Recommendations

- Reduce **sediment, nutrients and contaminants** inputs
- Continue monitoring **seagrass beds** – important carbon sink, sediment trap
- Re-establish monitoring of **subtidal habitats** to support biodiverse reefs and healthy fisheries
- Effective coordinated **land to sea** management approach.




Questions

Tuia ki te wai

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Tuia ki te here tangata

Mātauranga Māori

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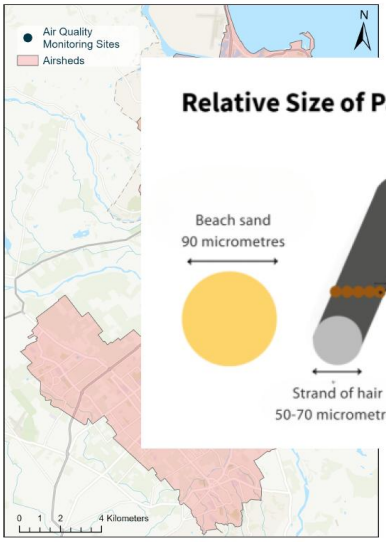
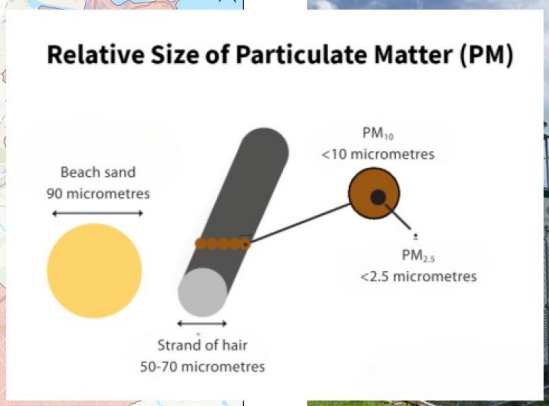
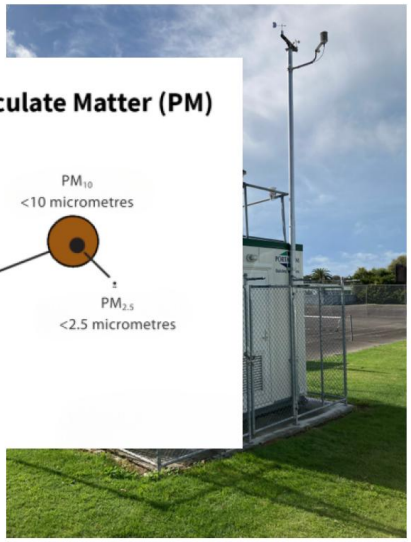
The air we breathe

- Particulate Matter (PM)
  - Impacts our health!
- 3 airsheds with PM_{10} and $PM_{2.5}$ monitoring
- Measure against National Environmental Standards and WHO guidelines
- Main air quality issues:
  - Residential and outdoor burning in Napier & Hastings
  - Industrial and natural sources in Awatoto

Particulate matter infographic sourced from https://www.lawa.org.nz/learn/factsheets/air-quality-topic/air-pollutants-particulate-matter







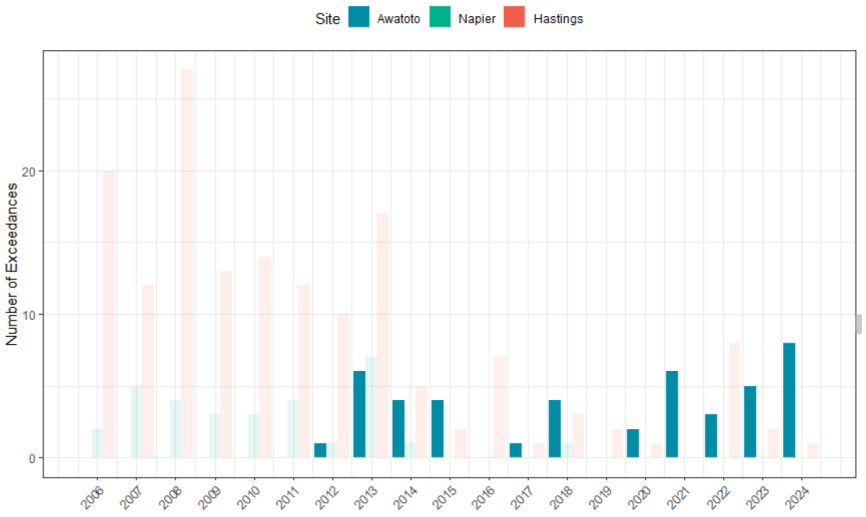
The air we breathe

PM_{10}

- National Environmental Standard – Daily limit 50 µg/m^3
- 1 exceedance per year allowed

The Goal

- No more than 1 exceedance per year for 5 years consecutively to become 'Not Polluted'

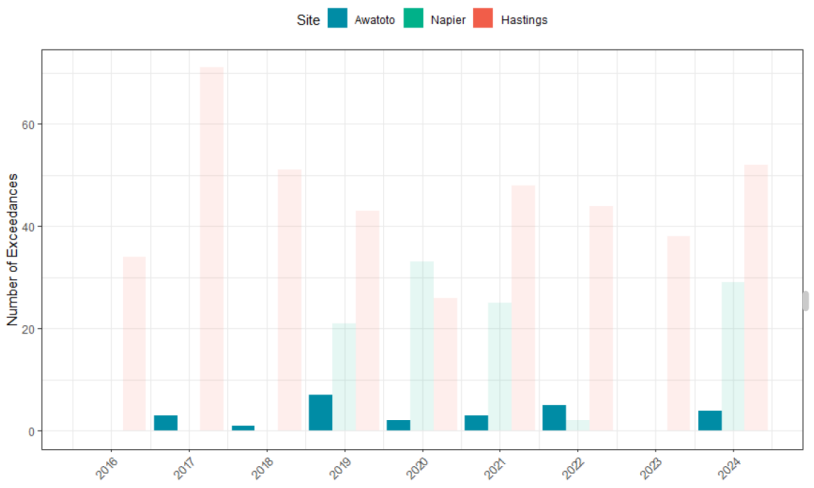


The air we breathe

$PM_{2.5}$

- WHO daily guideline 15 µg/m^3
- 3-4 exceedances per year allowed

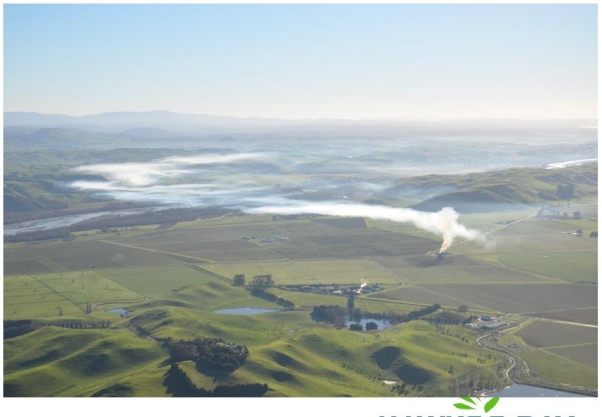
- Napier and Hastings fail to meet this guideline



The air we breathe

Key Points and Recommendations

- Hastings is still a Polluted airshed. More work needs to be done to reduce PM_{10} concentrations so that air quality in Hastings meets the NES
- WHO targets for $PM_{2.5}$ will require even more reductions, wood burning is a key source of emissions
- There is no level below which the health effects of air pollution do not occur



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Tuia ki te here tangata

How we use our land

Ashton Eaves: Senior Land Scientist

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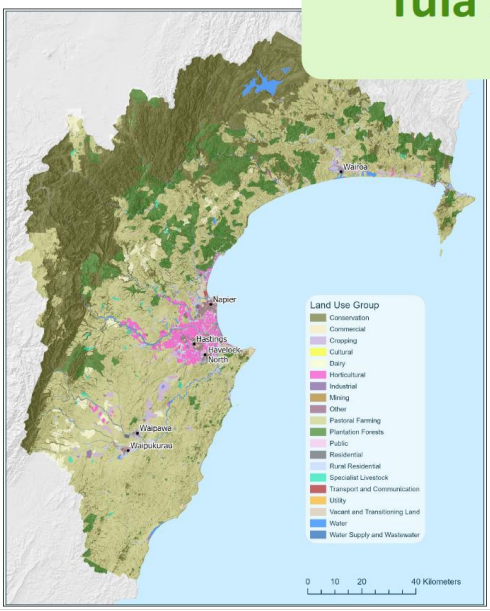
Tuia ki te here tangata

How we use our land



Land Use Monitoring:

- Provides useful information on:
  - Resource allocation
  - Density or intensity of land use
  - Future planning.
- Annual spatial snapshot of land use using LINZ Category Codes and the Land Cover Database.
- Alignment with the new draft New Zealand Land Use and Management Classification System.

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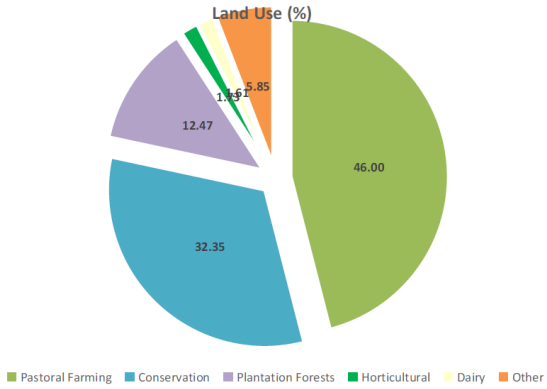
Tuia ki te here tangata

How we use our land



Land Use Monitoring:

- Pastoral farming is the largest land use followed by conservation and then plantation forestry.
- Horticulture, dairy and cropping are large industries with intensive land use.
- Manufacturing is the largest sector by regional GDP.
- Results are also represented by TLA and EMA.
- Accuracy, kappa = 88%.

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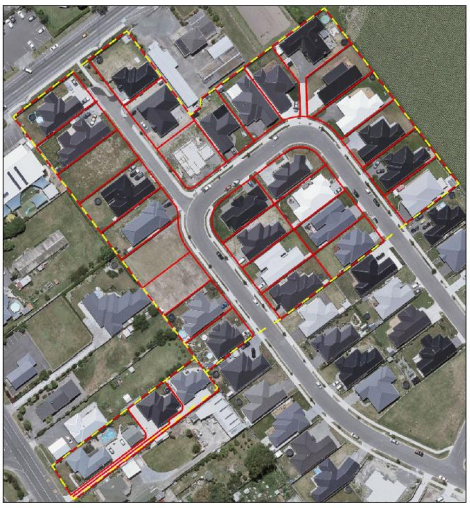
Tuia ki te here tangata

How we use our land



Subdivision of original parcels (yellow dashed line) into 2 or more properties (red solid line).

$N_{t0} < N_{t1}$

Land Use Change

- GIS change detection algorithm using cadastral parcels.
- Reports on new subdivisions, amalgamations, rural fragmentations and rural amalgamations.
- Classifies greenfield developments vs intensification of existing urban areas.
- Can examine changes in the use of Highly Productive Land.

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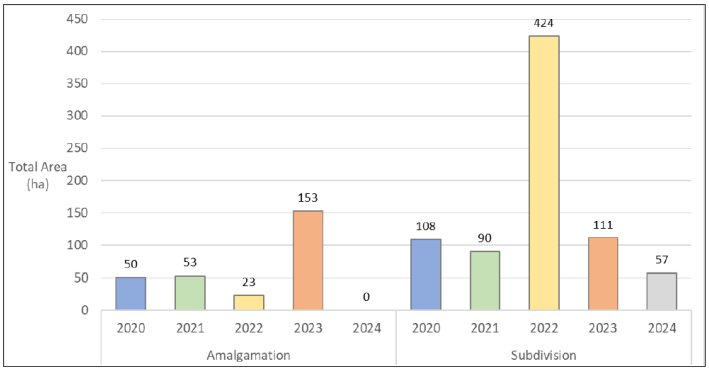
Tuia ki te here tangata

How we use our land



Total area of new parcels in greenfield zones from 2019 to 2024.

Land Use Change

- Between 2019 - 2024 there was 1,069 ha of greenfield land changing use; a rate of 214 ha a^{-1}.
- The intensification rate of infill development was 15 ha a^{-1}
- A lack of brown-field developments, infill housing and medium to high-density builds.
- The total area of versatile soils converted to urban was 131 ha a^{-1}.

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Tuia ki te here tangata

How we use our land

Implications

- Quantifying the loss of Highly Productive Land.
- Tracking the Future Development Strategy and urban expansion more generally.
- Monitor unsustainable/unsuitable land use practices.

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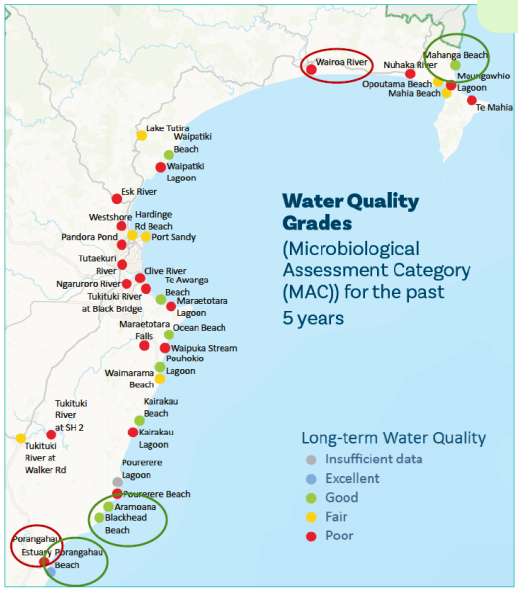
Tuia ki te here tangata

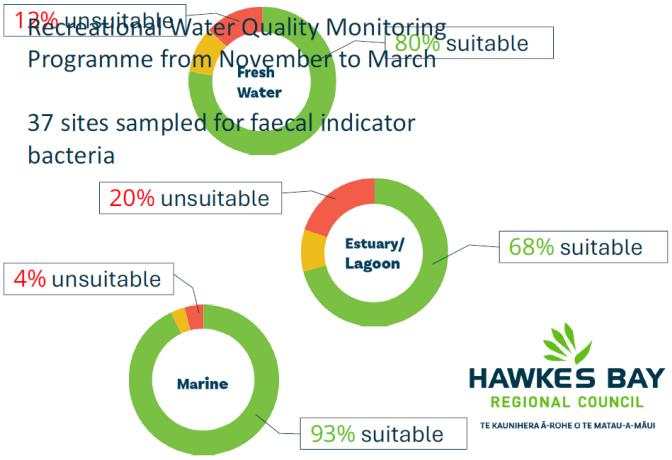
Our swimming and recreation spots



Suitability for swimming in the past 5 years (2019-2024)

Recreational Water Quality Monitoring Programme from November to March

37 sites sampled for faecal indicator bacteria



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Questions

Tuia ki te here tangata

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The journey continues...

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Balance - Our Catchments

Ka rongo te pō, ka rongo to ao

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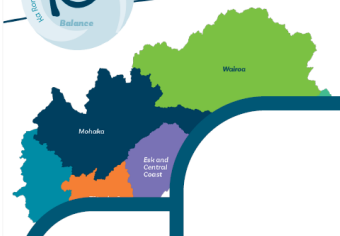
Northern Coast



Our swimming spots

Percent of time over 5 years our swimming spots were

58% suitable for swimming
21% caution advised
21% unsuitable for swimming
1 site monitored: 108 times over 5 years

85% suitable for swimming
3% caution advised
12% unsuitable for swimming
2 sites monitored: 198 times over 5 years

91% suitable for swimming
7% caution advised
2% unsuitable for swimming
3 sites monitored: 254 times over 5 years

Tūtaki ki te Here Tangata *People*

Shellfish gathering

Mahia Beach

Maungawhio Lagoon

Te Mahia

Lake wate

Whakaki Lak

Very good

0 1

Whakaki Lak

Very good

0 1

Rahui Chann

Very good

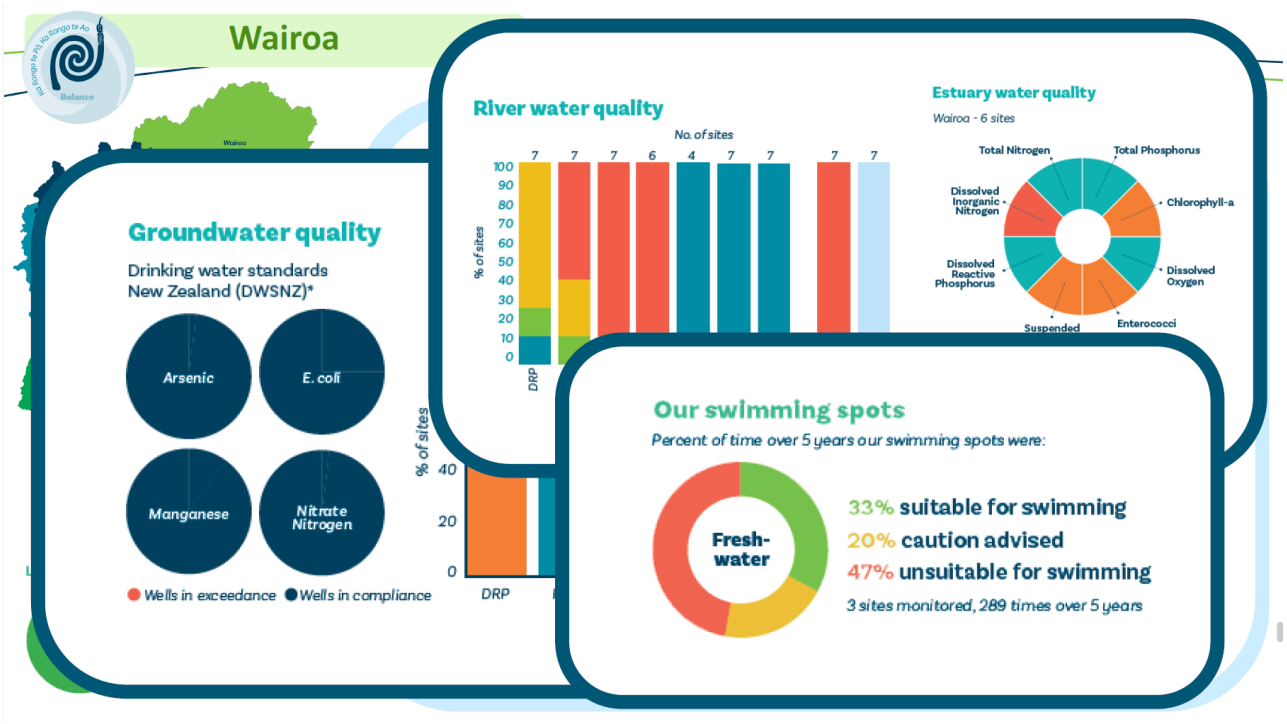
0 1

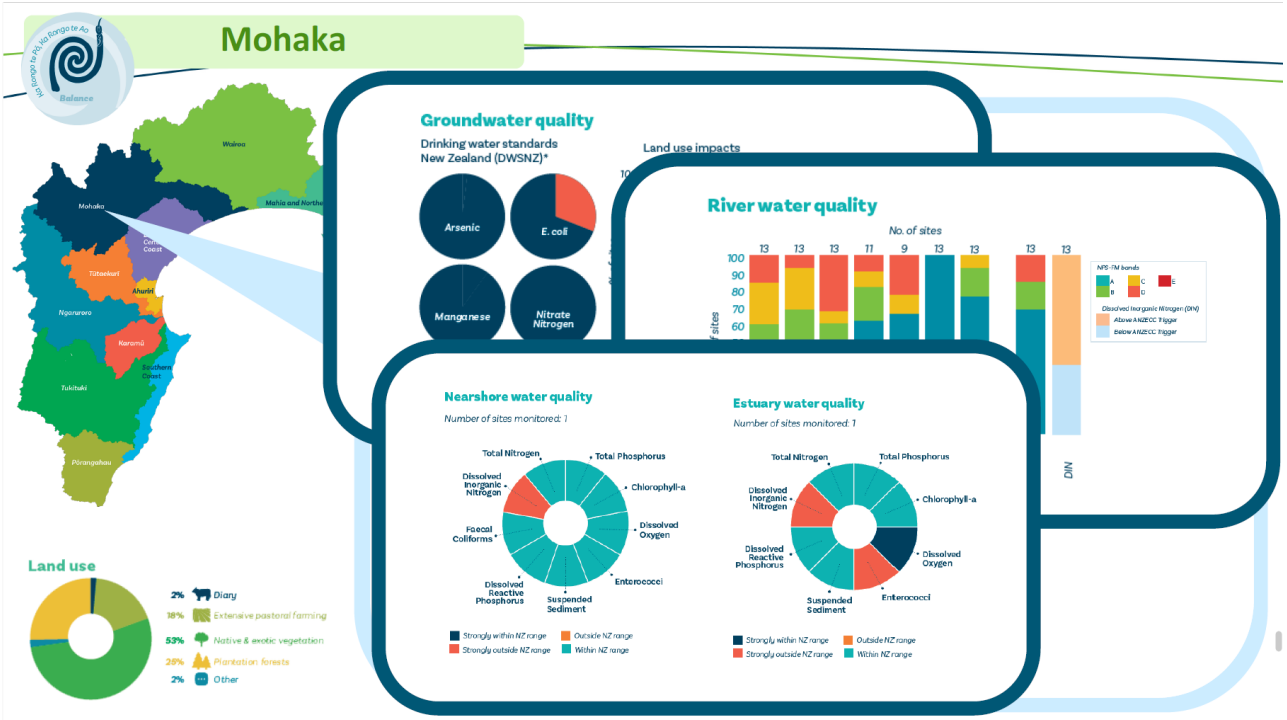
Dissolved Reactive Phosphorus

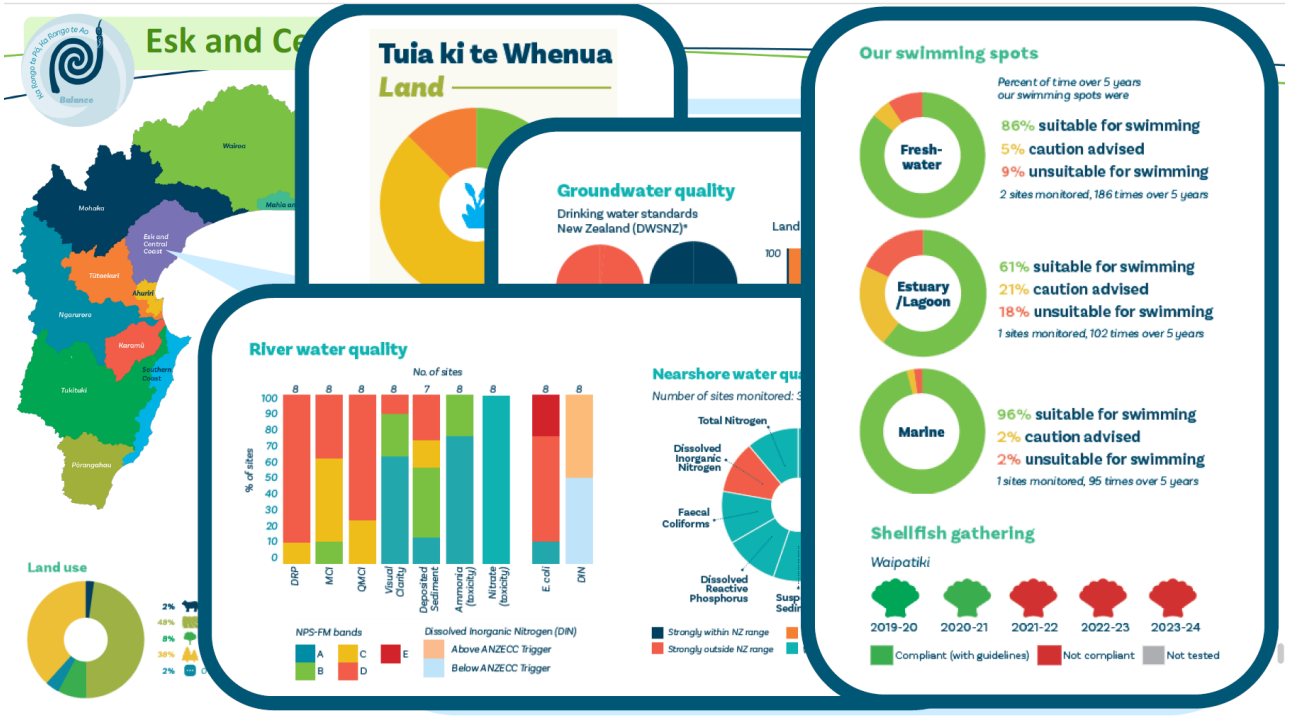
Suspended Sediment

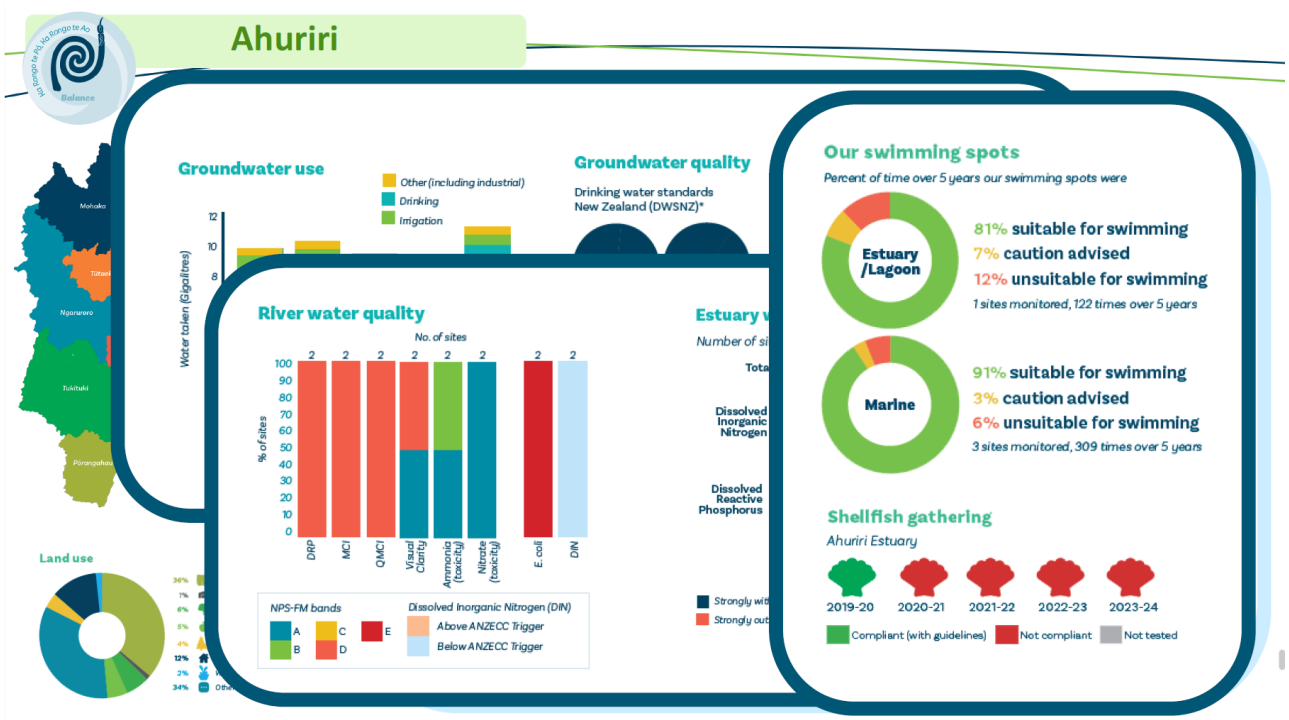
Strongly within NZ range
Outside NZ range
Strongly outside NZ range
Within NZ range

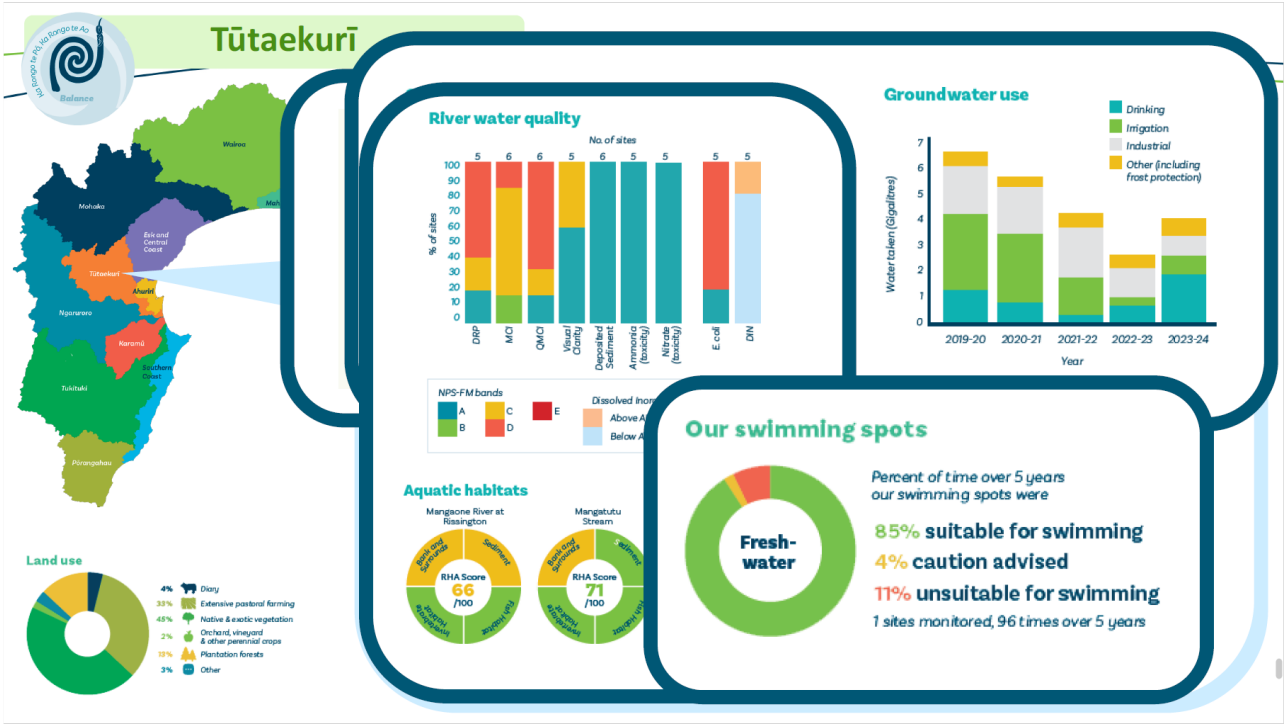
Great

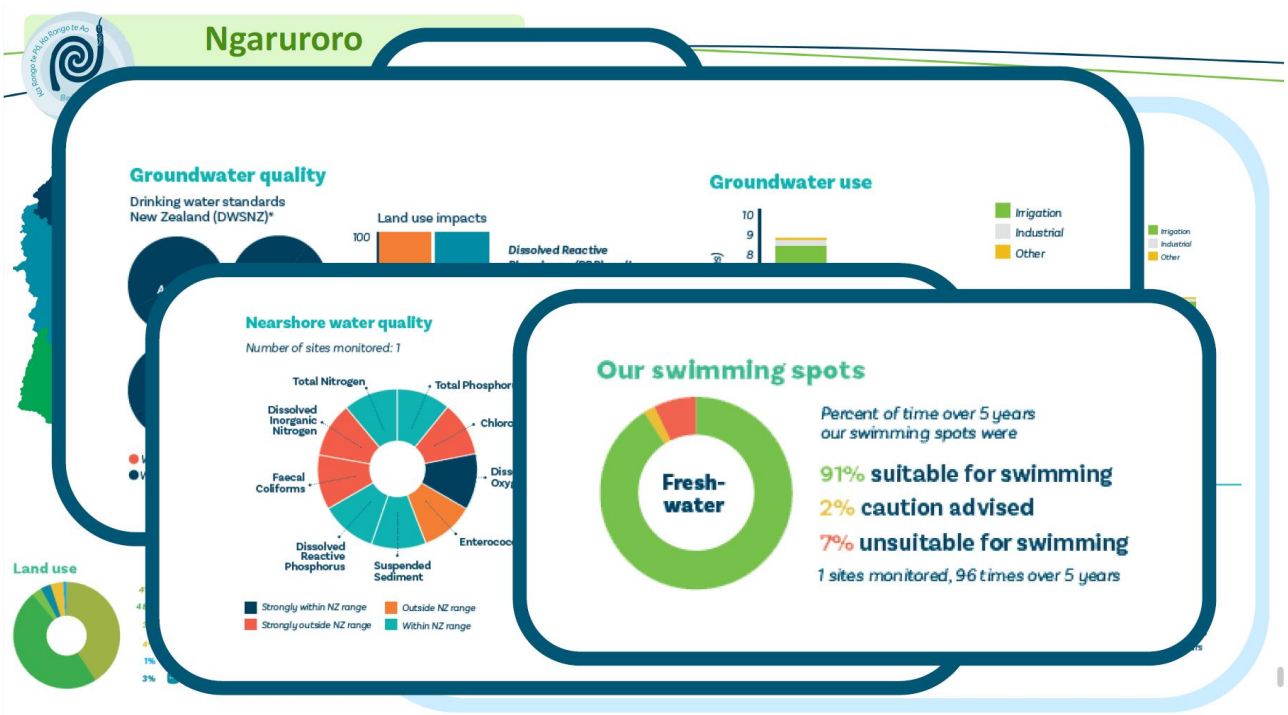

Wairoa
Groundwater quality
Drinking water standards New Zealand (DWSNZ)*
Arsenic
E. coli
Manganese
Nitrate Nitrogen
Wells in exceedance
Wells in compliance
River water quality
No. of sites
% of sites
DRP
Estuary water quality
Wairoa - 6 sites
Total Nitrogen
Total Phosphorus
Chlorophyll-a
Dissolved Oxygen
Enterococci
Suspended
Dissolved Reactive Phosphorus
Dissolved Inorganic Nitrogen
Our swimming spots
Percent of time over 5 years our swimming spots were:
Fresh-water
33% suitable for swimming
20% caution advised
47% unsuitable for swimming
3 sites monitored, 289 times over 5 years

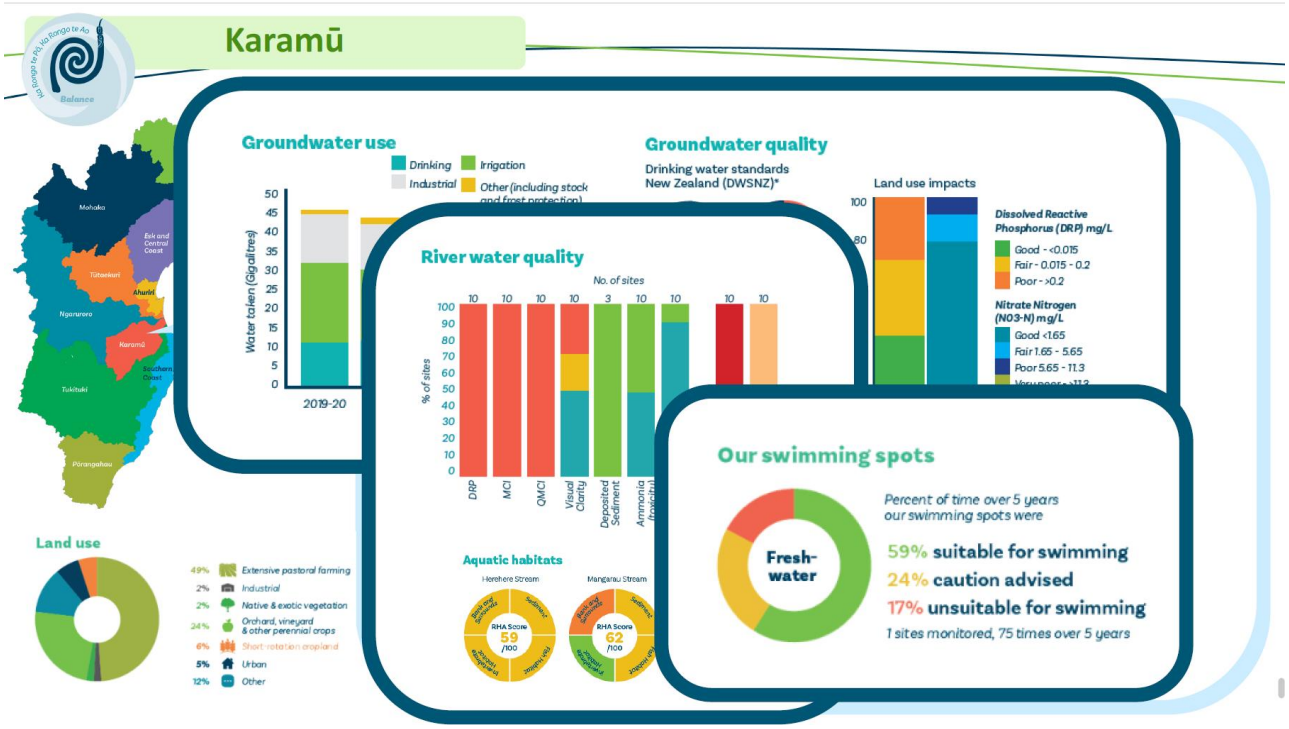

Mohaka
Groundwater quality
Drinking water standards New Zealand (DWSNZ)*
Arsenic
E. coli
Manganese
Nitrate Nitrogen
Land use impacts
River water quality
No. of sites
DIN
Nearshore water quality
Number of sites monitored: 1
Estuary water quality
Number of sites monitored: 1
Total Nitrogen
Total Phosphorus
Chlorophyll-a
Dissolved Oxygen
Enterococci
Suspended Sediment
Dissolved Reactive Phosphorus
Dissolved Inorganic Nitrogen
Faecal Coliforms
Land use
2% Diary
18% Extensive pastoral farming
53% Native & exotic vegetation
26% Plantation forests
2% Other

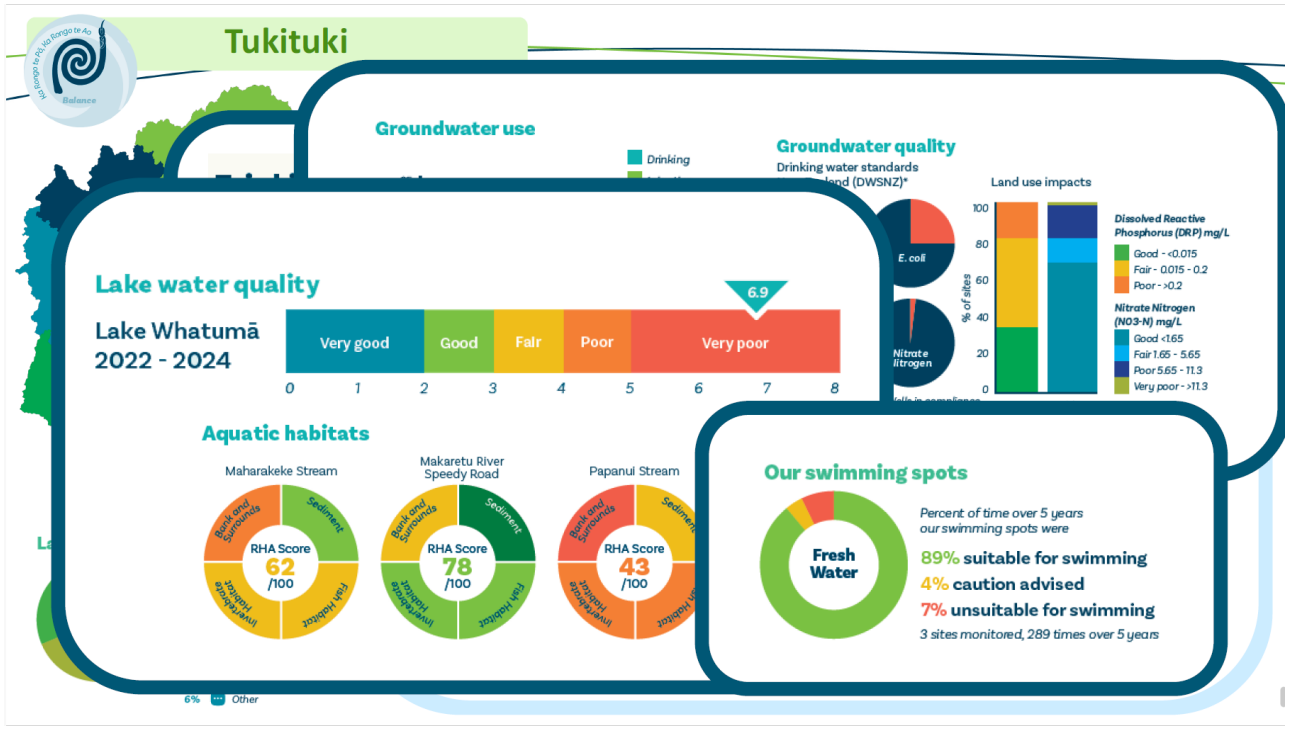

Esk and Ce
Tuia ki te Whenua
Land
Groundwater quality
Drinking water standards
New Zealand (DWSNZ)*
River water quality
No. of sites
% of sites
DRP
MCI
QMCI
Visual Clarity
Deposited Sediment
Ammonia (toxicity)
Nitrate (toxicity)
E.coli
DIN
NPS-FM bands
Dissolved Inorganic Nitrogen (DIN)
Above ANZECC Trigger
Below ANZECC Trigger
Nearshore water qu
Number of sites monitored:
Total Nitrogen
Dissolved Inorganic Nitrogen
Faecal Coliforms
Dissolved Reactive Phosphorus
Strongly within NZ range
Strongly outside NZ range
Land use
Our swimming spots
Percent of time over 5 years our swimming spots were
Fresh-water
86% suitable for swimming
5% caution advised
9% unsuitable for swimming
2 sites monitored, 186 times over 5 years
Estuary /Lagoon
61% suitable for swimming
21% caution advised
18% unsuitable for swimming
1 sites monitored, 102 times over 5 years
Marine
96% suitable for swimming
2% caution advised
2% unsuitable for swimming
1 sites monitored, 95 times over 5 years
Shellfish gathering
Waipatiki
2019-20
2020-21
2021-22
2022-23
2023-24
Compliant (with guidelines)
Not compliant
Not tested

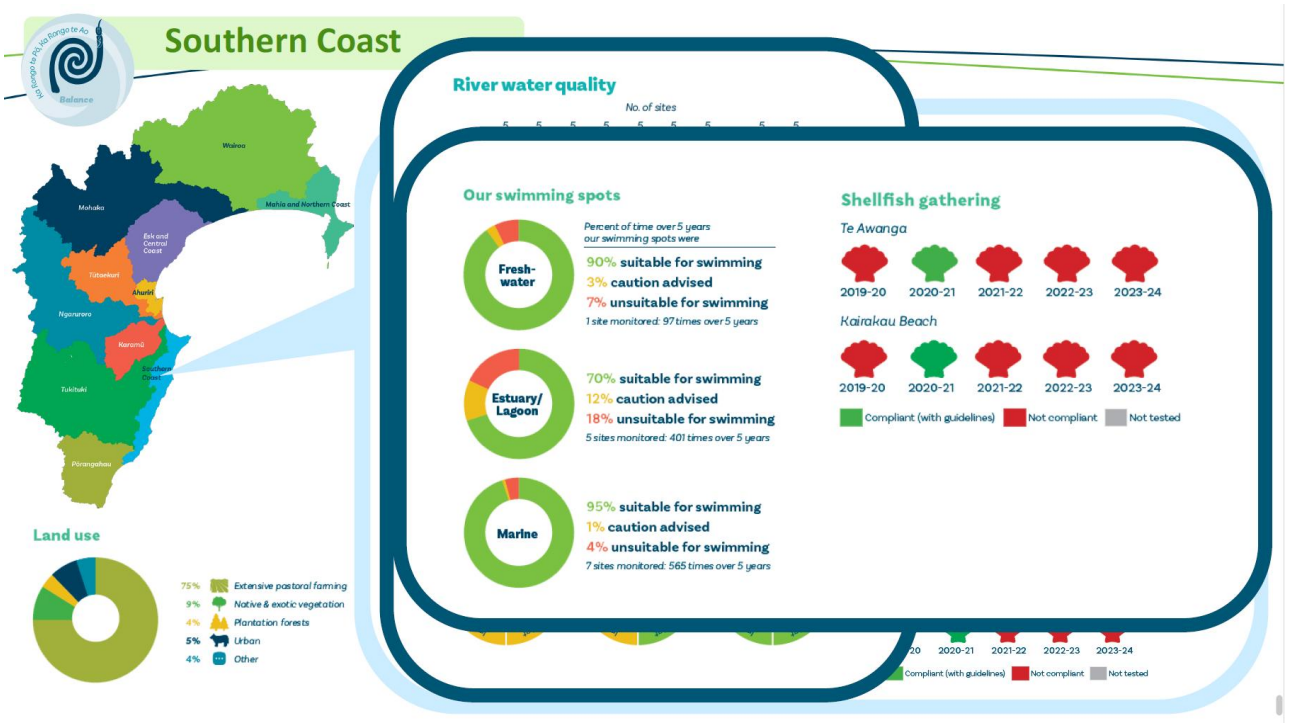

Ahuriri
Groundwater use
Other (including industrial)
Drinking
Irrigation
Water taken (Gigalitres)
Groundwater quality
Drinking water standards
New Zealand (DWSNZ)*
River water quality
No. of sites
% of sites
DRP
MCI
QMCI
Visual Clarity
Ammonia (toxicity)
Nitrate (toxicity)
E.coli
DIN
NPS-FM bands
Dissolved Inorganic Nitrogen (DIN)
Above ANZECC Trigger
Below ANZECC Trigger
Estuary
Number of si
Dissolved Inorganic Nitrogen
Dissolved Reactive Phosphorus
Land use
Our swimming spots
Percent of time over 5 years our swimming spots were
Estuary /Lagoon
81% suitable for swimming
7% caution advised
12% unsuitable for swimming
1 sites monitored, 122 times over 5 years
Marine
91% suitable for swimming
3% caution advised
6% unsuitable for swimming
3 sites monitored, 309 times over 5 years
Shellfish gathering
Ahuriri Estuary
2019-20
2020-21
2021-22
2022-23
2023-24
Compliant (with guidelines)
Not compliant
Not tested

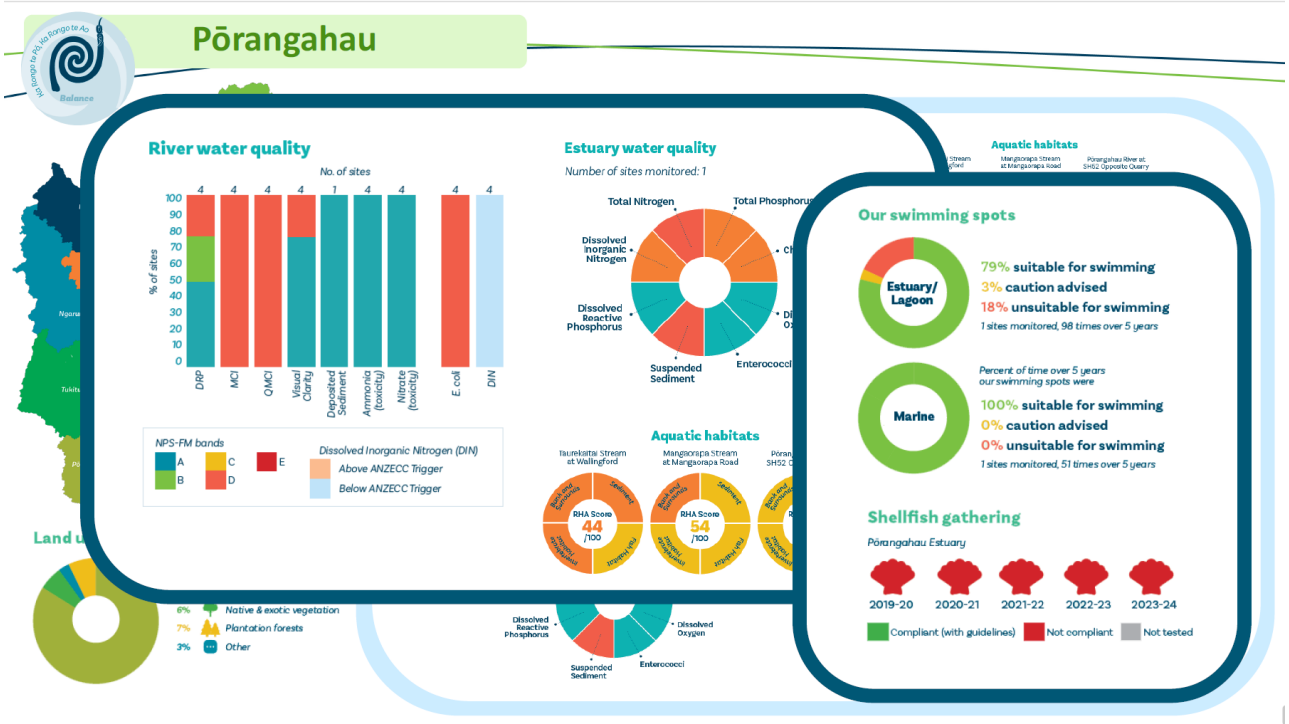

Tūtaekurī
River water quality
No. of sites
% of sites
DRP
MCI
QMCI
Visual Clarity
Deposited Sediment
Ammonia (toxicity)
Nitrate (toxicity)
E.coli
DIN
NPS-FM bands
A
B
C
D
E
Groundwater use
Drinking
Irrigation
Industrial
Other (including frost protection)
Water taken (Gigalitres)
2019-20
2020-21
2021-22
2022-23
2023-24
Year
Our swimming spots
Fresh-water
Percent of time over 5 years our swimming spots were
85% suitable for swimming
4% caution advised
11% unsuitable for swimming
1 sites monitored, 96 times over 5 years
Aquatic habitats
Mangaone River at Rissington
RHA Score
66
/100
Mangatutu Stream
RHA Score
71
/100
Land use
Dairy
Extensive pastoral farming
Native & exotic vegetation
Orchard, vineyard & other perennial crops
Plantation forests
Other


Ngaruroro
Groundwater quality
Drinking water standards New Zealand (DWSNZ)*
Land use impacts
Groundwater use
Irrigation
Industrial
Other
Nearshore water quality
Number of sites monitored: 1
Total Nitrogen
Total Phosphor
Dissolved Inorganic Nitrogen
Chloro
Faecal Coliforms
Enterococ
Dissolved Reactive Phosphorus
Suspended Sediment
Strongly within NZ range
Outside NZ range
Strongly outside NZ range
Within NZ range
Our swimming spots
Fresh-water
Percent of time over 5 years our swimming spots were
91% suitable for swimming
2% caution advised
7% unsuitable for swimming
1 sites monitored, 96 times over 5 years
Land use


Karamū
Groundwater use
Drinking
Irrigation
Industrial
Other (including stock and frost protection)
Water taken (Gigalitres)
2019-20
Groundwater quality
Drinking water standards New Zealand (DWSNZ)*
Land use impacts
Dissolved Reactive Phosphorus (DRP) mg/L
Good - <0.015
Fair - 0.015 - 0.2
Poor - >0.2
Nitrate Nitrogen (NO3-N) mg/L
Good <1.65
Fair 1.65 - 5.65
Poor 5.65 - 11.3
River water quality
No. of sites
% of sites
DRP
MCI
QMCI
Visual Clarity
Deposited Sediment
Ammonia
Our swimming spots
Fresh-water
Percent of time over 5 years our swimming spots were
59% suitable for swimming
24% caution advised
17% unsuitable for swimming
1 sites monitored, 75 times over 5 years
Land use
49% Extensive pastoral farming
2% Industrial
2% Native & exotic vegetation
24% Orchard, vineyard & other perennial crops
6% Short rotation cropland
5% Urban
12% Other
Aquatic habitats
Herehere Stream
Mangarau Stream
RHA Score
59
/100
RHA Score
62
/100


Tukituki
Groundwater use
Drinking
Groundwater quality
Drinking water standards
Land use impacts
E. coli
Nitrate Nitrogen
% of sites
Dissolved Reactive Phosphorus (DRP) mg/L
Good - <0.015
Fair - 0.015 - 0.2
Poor - >0.2
Nitrate Nitrogen (NO3-N) mg/L
Good <1.65
Fair 1.65 - 5.65
Poor 5.65 - 11.3
Very poor - >11.3
Lake water quality
Lake Whatumā
2022 - 2024
6.9
Very good
Good
Fair
Poor
Very poor
0 1 2 3 4 5 6 7 8
Aquatic habitats
Maharakeke Stream
Makaretu River Speedy Road
Papanui Stream
RHA Score
62
/100
RHA Score
78
/100
RHA Score
43
/100
Bank and Surrounds
Sediment
Fish Habitat
Invertebrate Habitat
Our swimming spots
Fresh Water
Percent of time over 5 years our swimming spots were
89% suitable for swimming
4% caution advised
7% unsuitable for swimming
3 sites monitored, 289 times over 5 years
6% Other


Southern Coast
River water quality
No. of sites
Our swimming spots
Fresh-water
90% suitable for swimming
3% caution advised
7% unsuitable for swimming
1 site monitored: 97 times over 5 years
Estuary/ Lagoon
70% suitable for swimming
12% caution advised
18% unsuitable for swimming
5 sites monitored: 401 times over 5 years
Marine
95% suitable for swimming
1% caution advised
4% unsuitable for swimming
7 sites monitored: 565 times over 5 years
Shellfish gathering
Te Awanga
2019-20 2020-21 2021-22 2022-23 2023-24
Kairakau Beach
2019-20 2020-21 2021-22 2022-23 2023-24
Compliant (with guidelines) Not compliant Not tested
Land use
75% Extensive pastoral farming
9% Native & exotic vegetation
4% Plantation forests
5% Urban
4% Other


Pōrangahau
River water quality
No. of sites
% of sites
DRP MCI QMCI Visual Clarity Deposited Sediment Ammonia (toxicity) Nitrate (toxicity) E. coli DIN
NPS-FM bands
A B C D E
Dissolved Inorganic Nitrogen (DIN)
Above ANZECC Trigger
Below ANZECC Trigger
Estuary water quality
Number of sites monitored: 1
Total Nitrogen
Total Phosphorus
Dissolved inorganic Nitrogen
Dissolved Reactive Phosphorus
Suspended Sediment
Enterococci
Aquatic habitats
Taurekaitai Stream at Wallingford
Mangaorapa Stream at Mangaorapa Road
RHA Score 44 /100
RHA Score 54 /100
Our swimming spots
Estuary/ Lagoon
79% suitable for swimming
3% caution advised
18% unsuitable for swimming
1 sites monitored, 98 times over 5 years
Marine
Percent of time over 5 years our swimming spots were
100% suitable for swimming
0% caution advised
0% unsuitable for swimming
1 sites monitored, 51 times over 5 years
Shellfish gathering
Pōrangahau Estuary
2019-20 2020-21 2021-22 2022-23 2023-24
Compliant (with guidelines) Not compliant Not tested
Land use
6% Native & exotic vegetation
7% Plantation forests
3% Other

Questions…

Attachment 2: Item 8 – Deputation:

Towards Predator Free Hawkes Bay

A coll
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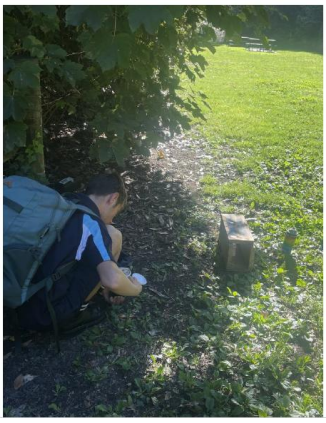
er

Talk to you today about

- Predator Free Mataruahou
- Establishment of Towards Predator Free HB
- How we are starting
- Recommendations for HBRC



Predator Free Mataruahou

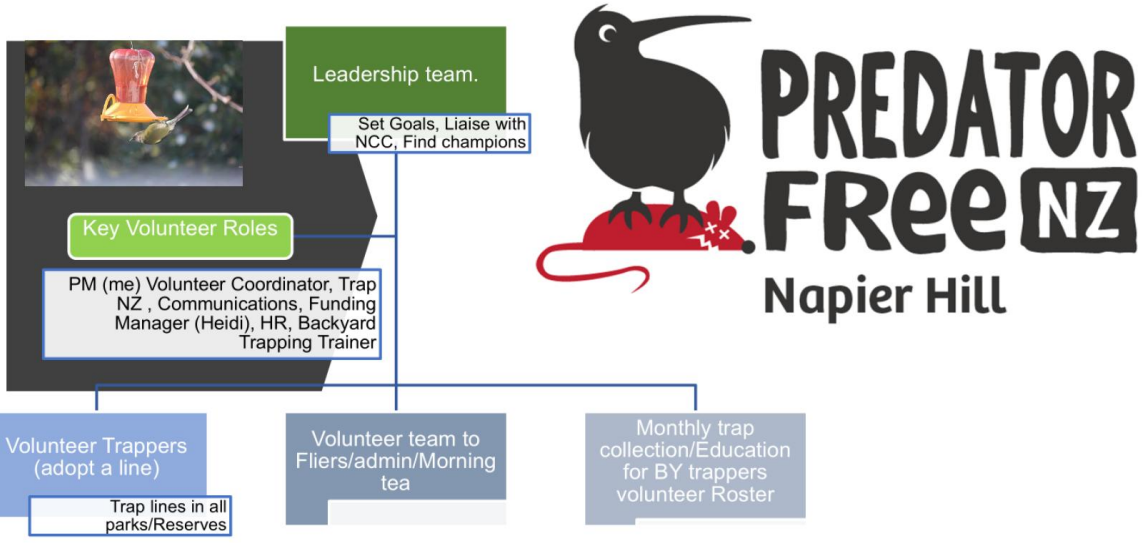
- Set up in 2022, PFNZ Backyard Community Grant
- Street Meetings/Shared Resources
- **Goals**
- Increase in Native birds /reptiles/insects– breeding Kaka!
- 1 in 5 Napier Hill households actively trapping
- Trap lines in the Reserves
- Assist other community HUBS to set up

PFNH today

- 160+ Traps in back yards and schools
- Bird Counts (Colab with Bird NZ)
- Trapping and education programmes in the 3 schools
- Trap line in Sturms Gully and Cobden Lane (checked by DOE Students)
- Community education and trap collection day

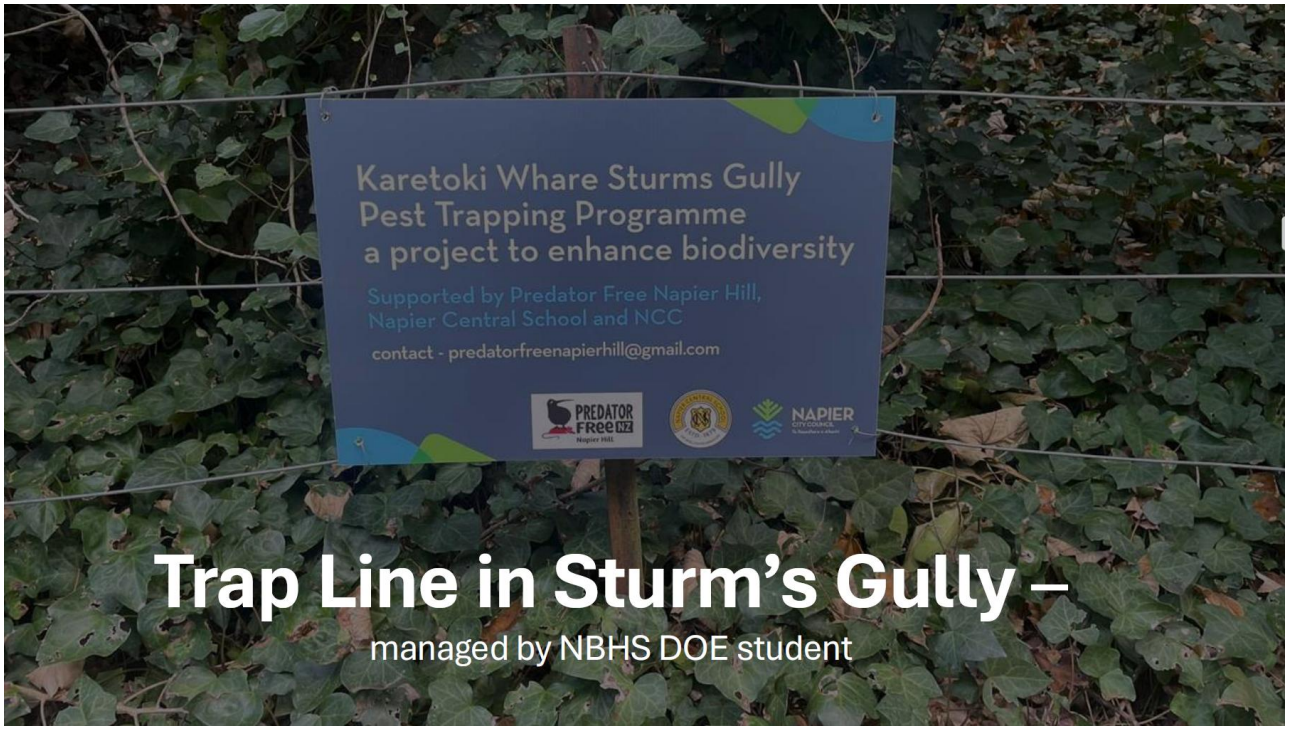
Next Steps

- Self Sustainability. Leadership group
- Partnership with NCC – Reserves/parks
- Trap lines in all parks checked by locals
- Build profile



PREDATOR FREE NZ
Napier Hill

Trap Lines at Napier Central, Sacred Heart School and NGHS



Menz Shed Napier, Community Education and Trap Collection Day

One woman band not sustainable – how can I make this project Self Sustainable ?

Workshop 18 Feb – is there support for a coordinated collaborative community approach to predator control in HB to enhance Biodiversity

- Biodiversity HB
- Cape Sanctuary
- Cr Sophie Seers
- Cr Hayley Brown
- Cr Annette Bronson
- DOC
- ECOED
- Forest and Bird
- HBRC
- PFNH
- NCC
- Save the Dotterels
- Sustainable HB
- Support also from Mana Ahuriri, Te Mata peak, Bird HB

Working Group Established

Region wide project to restore Hawke's Bay's unique wildlife and plants by removing introduced predators such as rats, possums, and stoats.

- *Where? Deep Bush, Rural, & Urban Community Trapping*
- *Funding*
- *Structure*
- *Communication*
- *ST and LT Goals*
- *Planning Spring Hui for HB Predator Control Champions*
- *Community day this Summer*

TOWARDS PREDATOR FREE
TE MATAU-A-MĀUI

Cr Sophie Siers, Cr Hayley Brown, Rachel Ward (Cape Sanctuary), Belinda Sleight& Deb Monahan(BHB), Campbell Leckie (SHB),Natalie de Brugh(HBRC), Heidi Stiefel and Glenys (PFNH), Cr Marcus Buddo (HDC), James Treadwell(Forestry

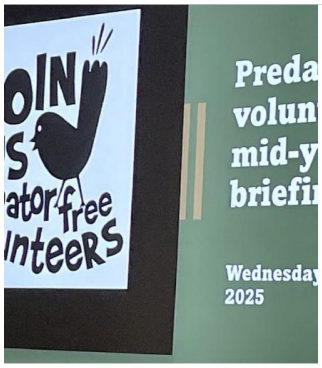
PF Maggies Way – *needed a coordinator to get it started*

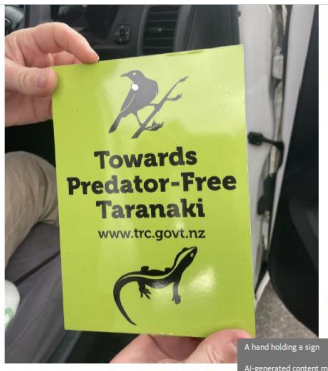
PAN PAC
FOREST PRODUCTS LTD

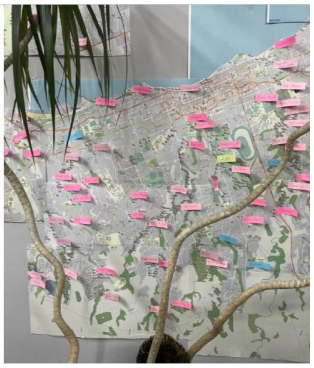
biodiversity Hawke's Bay

Taiao Ora, Tāngata Ora
Working Together for Better Biodiversity

PF Schools







Towards Predator Free Taranaki

- 2000 traps all cleared by volunteers
- Parks and Reserves
- Waiting list
- 10K+ Traps in Back yards

Community Benefits

Wellington PF Outcomes report

- Increase in **native birdlife** – but not only
- **Widespread and equitable participation** across the project. This means the ecological and wellbeing benefits, such as rat-free homes or increased wildlife, and potential benefits of participating, such as improvements to people's psychological and social wellbeing, are not limited to particular sectors of society.
- Increase in **community connectivity** and **friendships**
- Resilience
- **Linking our communities** - Hastings scouts
- By working together, we can all play a part in slowing down the impact of introduced predators on our natural species

Mataki Environmental report for PFNZ 2024

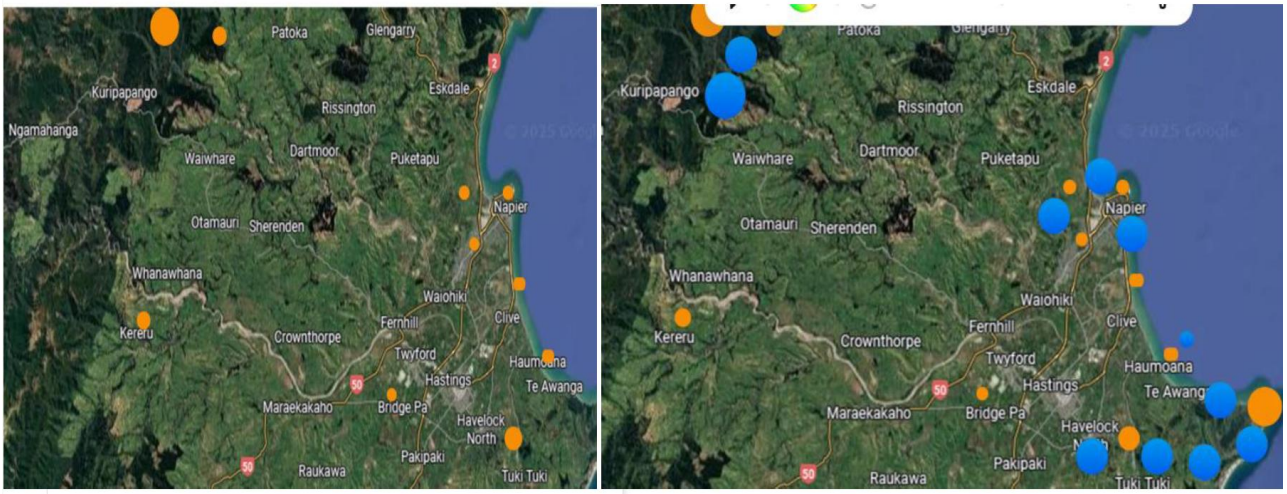
- Community conservation is a key partner in creating a better future for the indigenous biodiversity of NZ
- However, community conservation funding is facing a crisis
- Work is needed to better support community-based contributions to safeguard our natural heritage
- TPFHB believes that with improved coordination, collaboration and communication with the groups already doing the mahi in HB it will strengthen and encourage others to be part of this mahi

TOWARDS PREDATOR FREE
TE MATAU-A-MĀUI

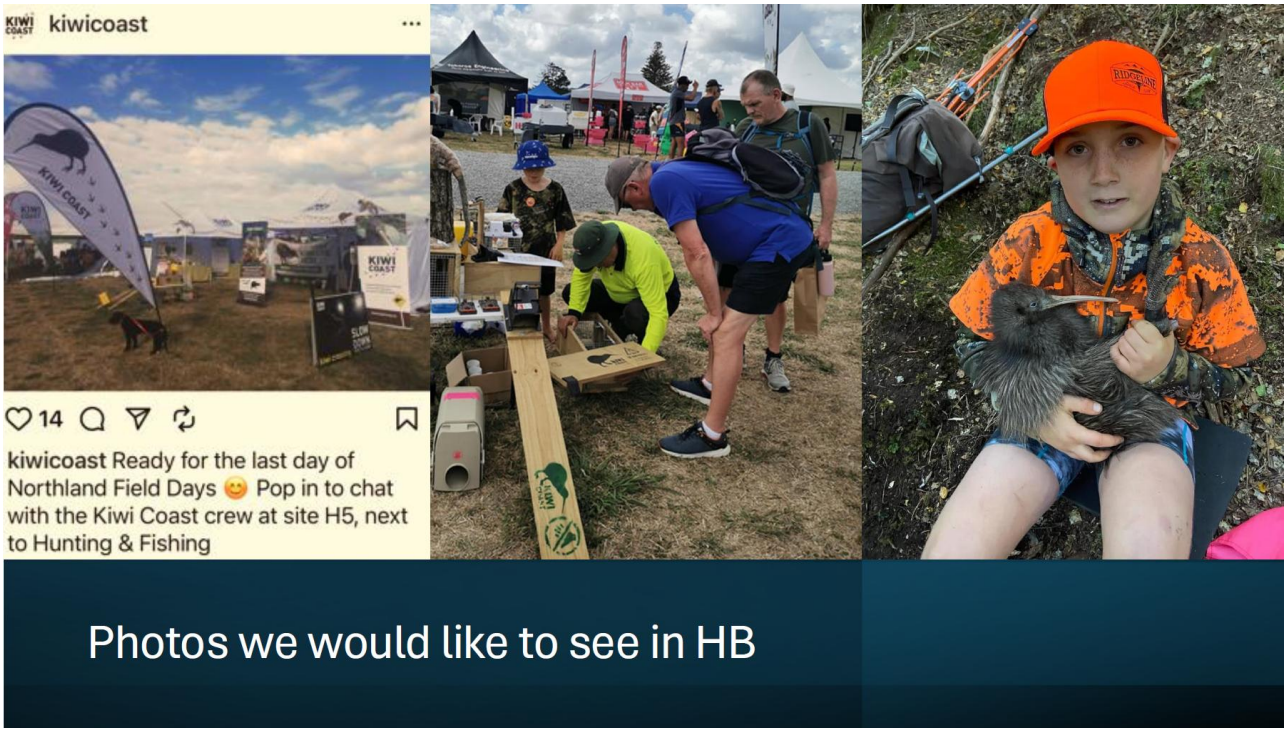
Recommendations for HBRC

- HBRC supports TPFHB ✓
- A Councillor role on the Governance Group, with a focus on advocacy, community engagement, and communications support. ✓
- A staff contact to contribute to the working group, with links into reserve management, operational support, and promotional channels.
- A coordinator to mobilise community groups

Community Predator Groups across HB



- Build corridors /Halo effect
- Equally our habitats need protecting so we can achieve our Biodiversity goals
- Planting trees, lets also look at predator control – they go hand in hand


kiwicoast
14
kiwicoast Ready for the last day of Northland Field Days Pop in to chat with the Kiwi Coast crew at site H5, next to Hunting & Fishing
Photos we would like to see in HB


PREDATOR Free NZ
"People are the Silver Bullet " –
Dan Henry Predator Free Mirimar

Attachment 3: Item 6 - Continuous Suspended Sediment monitoring and reporting on Hawke's Bay waterways:

CONTINUOUS SUSPENDED SEDIMENT MONITORING & REPORTING ON HAWKE'S BAY WATERWAYS

August 2025

HAWKES BAY REGIONAL COUNCIL
TE KAUNIHERA Ā-ROHE O TE MATAU-A-MĀUI

Suspended Sediment Monitoring

Introduction:

- Sediment in waterways is a key environmental stressor.
- The loss of topsoil also renders the land less productive.
- Measuring sediment loads in waterways (the ISCO Programme) enables reflection on the effectiveness of hill country erosion mitigations.
- Suspended sediment monitoring offers a method to measure the success of soil conservation measures.

Waikatuku Stream off Harrison Road

HAWKES BAY REGIONAL COUNCIL
TE KAUNIHERA Ā-ROHE O TE MATAU-A-MĀUI

Suspended Sediment Monitoring

Background:

- Hill country erosion is a key issue in Hawke's Bay with 258,000 ha (18%) of land with erosion rates yielding > 1,000 t per km^2 a^{-1}.
- Land delivers 8.5 Mt of sediment to the stream and river network and 8 Mt to the coast every year.
- Erosion has increased 6.4 Mt, 309%, from pre-human levels when analysing the SedNetNZ catchment yield data.

HAWKES BAY REGIONAL COUNCIL
TE KAUNIHERA Ā-ROHE O TE MATAU-A-MĀUI

Suspended Sediment Monitoring

Background:

- MPI funded the Hill Country Erosion Project to purchase and install 15 ISCOs in 2020 and employ a fixed-term technician.
- Five already belonged to the Land Science team for regional reporting.
- Technician funding stopped in 2024, and the Programme is now managed as additional workloads of the Water Quality Technicians, Catchment Advisors and the Land Science team.

Aropaoanui River at Aropaoanui

HAWKES BAY REGIONAL COUNCIL
TE KAUNIHERA Ā-ROHE O TE MATAU-A-MĀUI

Suspended Sediment Monitoring

The ISCO Programme:

- A network of automatic water samplers (ISCOs) to measure suspended sediment.
- Unlike monthly discrete sampling, ISCOs target the capture of multiple samples over flood events when erosion is high.
- Samples are then correlated against the flow and catchment area to determine load and yield.
- Supports and guides efforts to reduce sediment loads.




Suspended Sediment Monitoring

ISCO Network:

- The Network was severely impacted by Cyclone Gabrielle.
- Before 18 of the 20 sites were active.
- Six were destroyed and others were damaged.
- Many sites are awaiting resourcing.
- To date, only 5 sites of the original 20 are active, with 2 ISCOs deployed for the Pakuratahi Land Use Study to investigate the impacts of forestry harvesting.

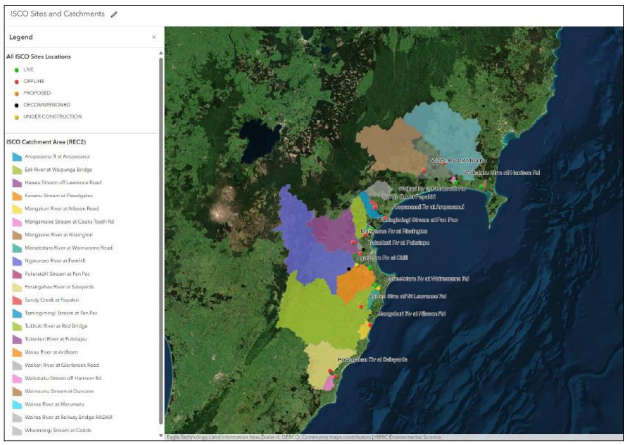

Mangaone River at Rissington site before and after

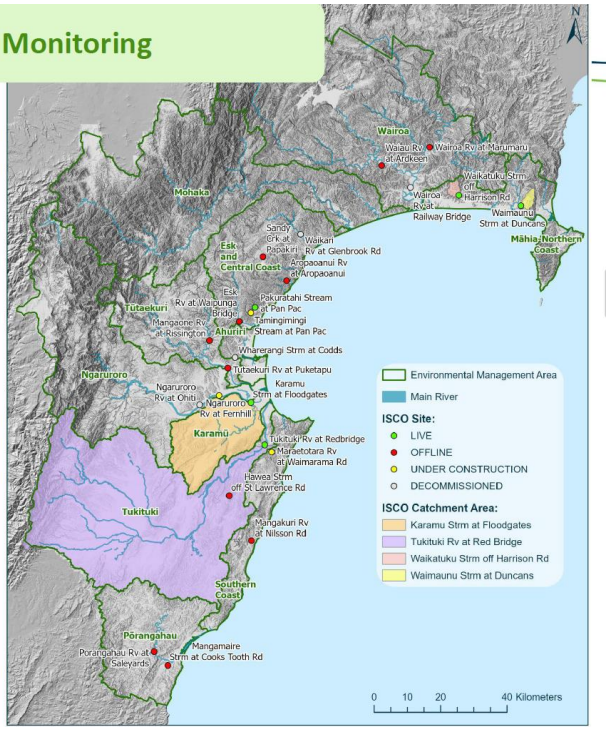
HAWKES BAY REGIONAL COUNCIL
TE KAUNIHERA Ā-ROHE O TE MATAU-A-MĀUI

Suspended Sediment Monitoring

Sites:

- ISCO Sites and Catchments





Suspended Sediment Monitoring

Methods:

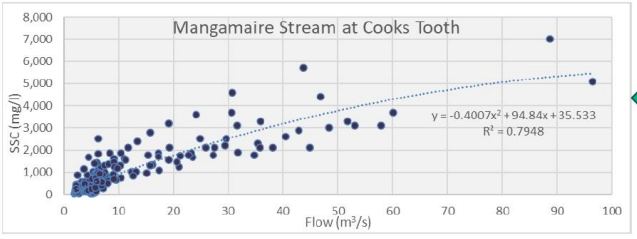
- the ISCO Programme measures direct continuous measurement of water level (with derived river/stream flow) and turbidity, coupled with ISCO samples.
- Sample results are then used to develop a regression relationship (rating curve) between flow and suspended sediment concentrations for load and yield calculations.

Data logger with water level/turbidity

Triggers ISCO sampling sequence

Samples tested in lab suspended sediment concentration

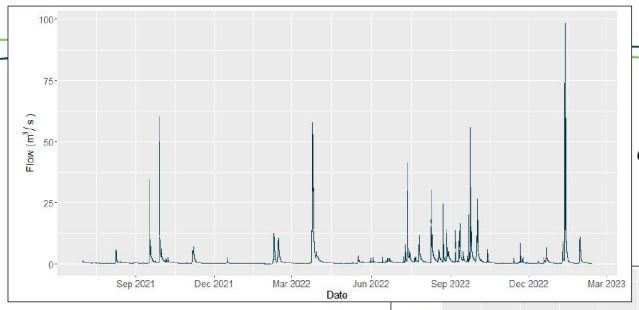
Rating curve of suspended sediment concentrations to flow.



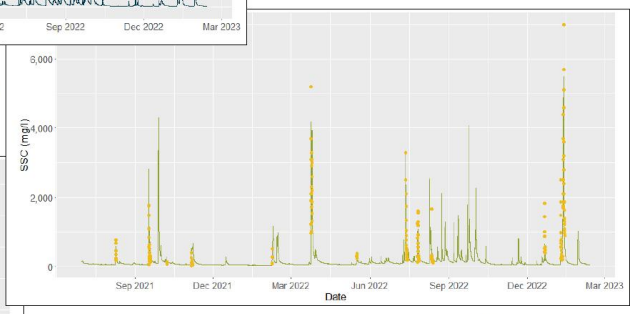
HAWKES BAY REGIONAL COUNCIL
TE KAUNIHERA Ā-ROHE O TE MATAU-A-MĀUI

Methods:

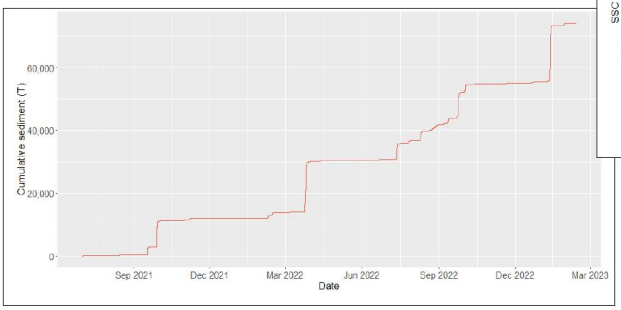
- Sediment load



a) Flow



b) Suspended Sediment Concentration



c) Cumulative load

HAWKES BAY REGIONAL COUNCIL
TE KAUNIHERA Ā-ROHE O TE MATAU-A-MĀUI

Suspended Sediment Monitoring

Achievements:

- The first period loads and yields; 1st July 2021 - 12th February 2023.
- Load = 8.5 Mt a^{-1}
- Yield = 187 t a^{-1} ha^{-1}
- Dirty list:
  - Wairoa River (15 t a^{-1} ha^{-1})
  - Porangahau River (14 t a^{-1} ha^{-1})
  - Sandy Creek (13 t a^{-1} ha^{-1})
  - Waikatuku Stream (11 t a^{-1} ha^{-1})
- Clean list:
  - Hawea Stream (1 t a^{-1} ha^{-1})
  - Maraetotara River (2 t a^{-1} ha^{-1})
  - Waiau River (3 t a^{-1} ha^{-1})

Site	Cumulative Load (t a^{-1})	Area-weighted Yield (t a^{-1} ha^{-1})	Quality (SSC to flow relationship)	Mean Flow (m^3 s^{-1})
Aropaoanui River at Aropaoanui	93,220	6	Poor	4.44
Esk River at Waipunga Bridge	115,774	5	Good	7.05
Hawea Stream off St Lawrence Road	1,944	1	Average	0.12
Karamu Stream at Floodgates	143,417	3	Poor	4.1
Mangakuri River at Nilsson Road	50,896	7	Poor	0.96
Mangamaire Stream at Cooks Tooth Rd	45,650	7	Good	1.3
Mangaone River at Rissington	129,999	6	Poor	6.64
Maraetotara River at Waimarama Road	12,647	2	Average	1.29
Ngaruroro River at Fernhill	1,495,003	8	Good	63.78
Porangahau River at Saleyards	942,893	14	Average	14.81
Sandy Creek at Papakiri	25,957	13	Average	0.362
Tukituki River at Red Bridge	1,672,278	7	Good	61.48
Tutaekuri River at Puketapu HBRC Site	510,915	7	Good	20.24
Waiau River at Ardkeen	434,790	3	Average	65.19
Waikatuku Stream off Harrison Rd	16,617	11	Average	0.28
Waimaunu Stream at Duncans	11,566	7	Average	0.53
Wairoa River at Marumaru	2,710,186	15	Average	86.35
Wharerangi Stream at Codds	111,055	60	Poor	0.32
TOTAL	**8,524,808**	**187**		**339.24**

Suspended Sediment Monitoring

Achievements:

- The second period loads and yields; the week of Cyclone Gabrielle.
- Load = 13 Mt a^{-1}
- Hypothetical given existing ratings.
- Measured load excludes missing data from destroyed/damaged sites.
- Modelled load would be much higher but we just don't know.

Site	Event Load (t)	Quality (SSC to flow relationship)	Peak Flow ($m^3 s^{-1}$)
Aropaoanui River at Aropaoanui *	15,117	Poor	134
Esk River at Waipunga Bridge *	737,931	Good	2,006
Hawea Stream off St Lawrence Road	3,558	Average	7
Karamu Stream at Floodgates *	287,073	Poor	101
Mangakuri River at Nilsson Road	4,184	Poor	30
Mangamaire Stream at Cooks Tooth Rd	27,930	Good	218
Mangaone River at Rissington *	1,964,150	Poor	1,393
Maraetotara River at Waimarama Road	4,307	Average	137
Ngaruroro River at Fernhill	3,699,683	Good	5,398
Porangahau River at Saleyards *	184,548	Average	1,299
Sandy Creek at Papakiri *	248,619	Average	31
Tukituki River at Red Bridge	1,362,961	Good	3,462
Tutaekuri River at Puketapu HBRC Site * *	2,159,201	Good	4,823
Waiau River at Ardkeen	744,996	Average	1,654
Waikatuku Stream off Harrison Rd	11,441	Average	15
Waimaunu Stream at Duncans	5,042	Average	21
Wairoa River at Marumaru*	1,412,675	Poor	4100
Wharerangi Stream at Codds	101,173	Poor	54
TOTAL	**12,974,589**		**24,883**

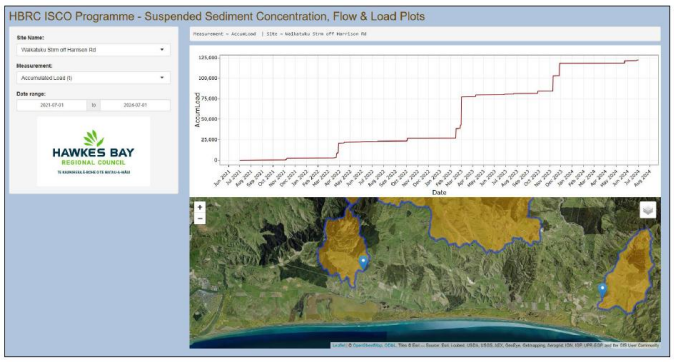
Suspended Sediment Monitoring

Achievements:

- The third period loads and yields; 19th February 2023 - 30th June 2024.
- Waikatuku & Waimaunu noticeably dirtier.
- Waikatuku Stream pre-cyclone 11 t a^{-1} ha^{-1} before 39 t a^{-1} ha^{-1} after.
- Waimaunu Stream pre-cyclone 7 t a^{-1} ha^{-1} before 11 t a^{-1} ha^{-1} after.
- Tukituki River cleaner; an artefact of less rainfall; 7 t a^{-1} ha^{-1} before 6 t a^{-1} ha^{-1} after.
- Shiny web app for viewing data:

HBRC ISCO Programme – SSC, Flow & Load Plots

Site	Cumulative Load (t a^{-1})	Area-weighted Yield (t a^{-1} ha^{-1})	Quality (SSC to flow relationship)	Mean Flow ($m^3 s^{-1}$)
Karamu Stream at Floodgates	-	-	Good	4.59
Tukituki River at Red Bridge	1,398,538	6	Good	50.99
Waikatuku Stream off Harrison Rd	60,868	39	Average	0.221
Waimaunu Stream at Duncans	18,209	11	Average	0.797
TOTAL	**1,477,616**	**56**		**56.60**



Suspended Sediment Monitoring

Direction:

a) Continue ISCO sampling and sediment gaugings.
b) Monitor, measure and report changes in response to land use change or council programmes.
c) Continual development of ratings.
d) Reinstate some sites that consider current yields and soil conservation measures.
e) Integrate soil physical characteristics to help re-focus on soil conservation outcomes.
f) Develop a comprehensive, longer-term plan as part of the science review.

Wairoa River at Marumaru after Cyclone Gabrielle

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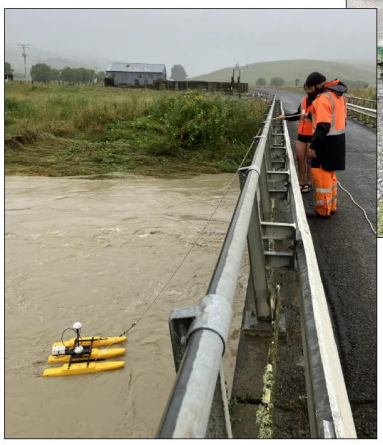
Suspended Sediment Monitoring

Conclusion:

- Given the network rebuild, we will address the more holistic issue of soil conservation.
- Not only focus on erosion control through planting trees, but also integrate new land management practices, soil science and land use suitability.
- Adopt direction from the science review.



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Questions?

Porangahau River at Saleyards sediment gauging last week

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Attachment 4: Item 7 - Biodiversity Programmes update:

Biodiversity Programmes Update

20 August 2025

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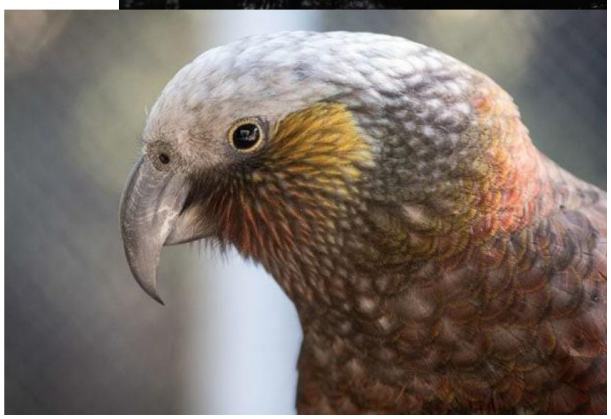
Otupua, Taharua catchment



Waituku (Whakakī catchment)

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100 Acre, Maraetōtara Plateau

Fish passage work

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Save the Dotterels- Hawke's Bay

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Jervoistown Forest Project

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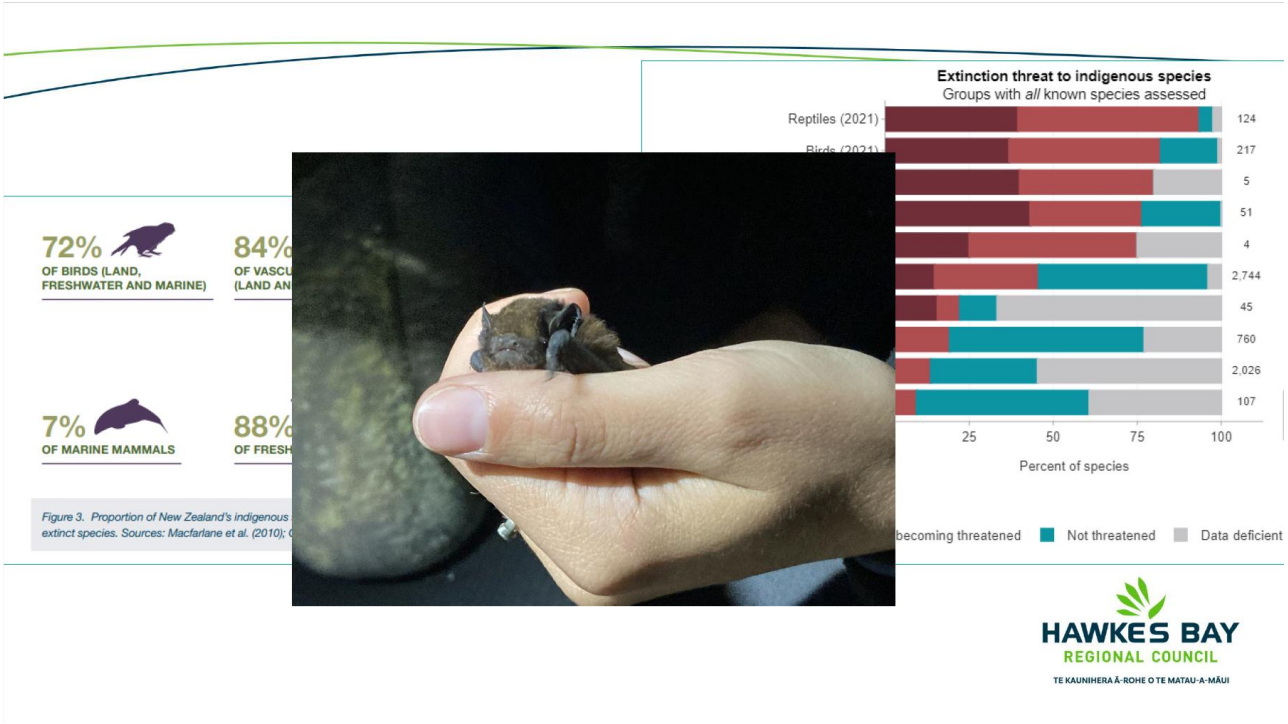
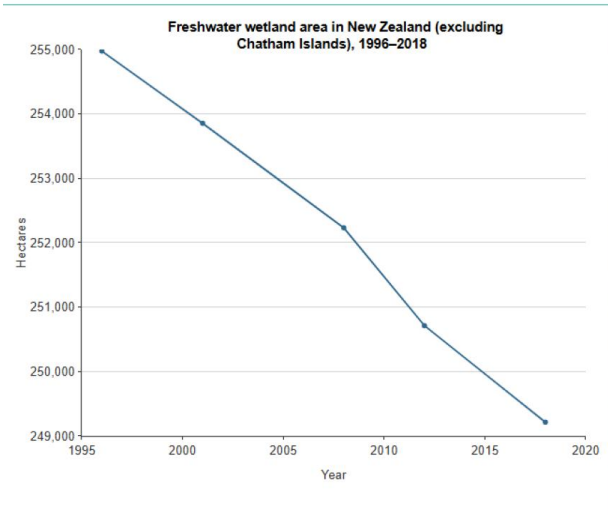


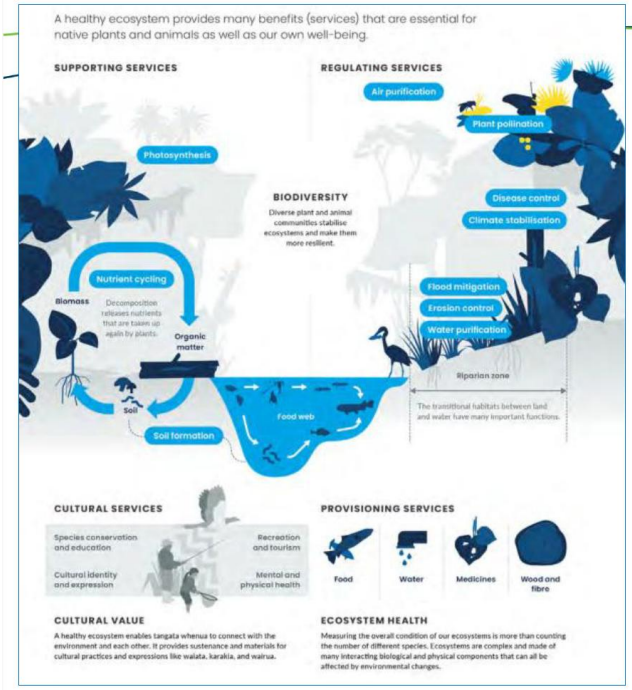
Figure 3. Proportion of New Zealand's indigenous extinct species. Sources: Macfarlane et al. (2010);

Hawke's Bay retains just

4% of historic wetlands and **23% of original forest cover**

with continued loss





Ecosystem Services

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2011

2022

Challenges

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Next steps

Focus on **maintenance**

Outcome monitoring is essential

Collaborative partnerships - *project delivery & technical advice*