A catchment scale approach to erosion management: 10 years of the Waipā Catchment Plan

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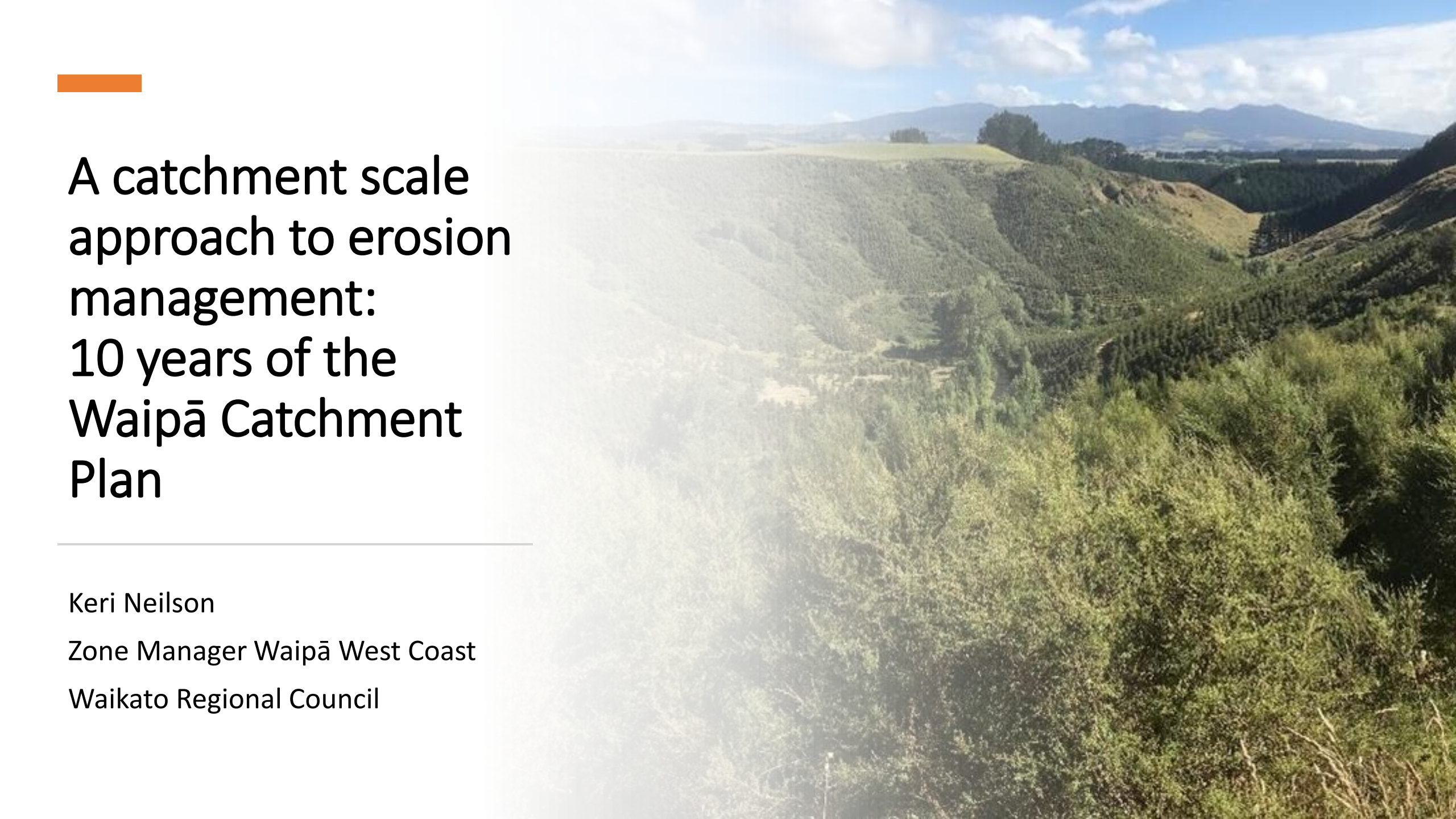
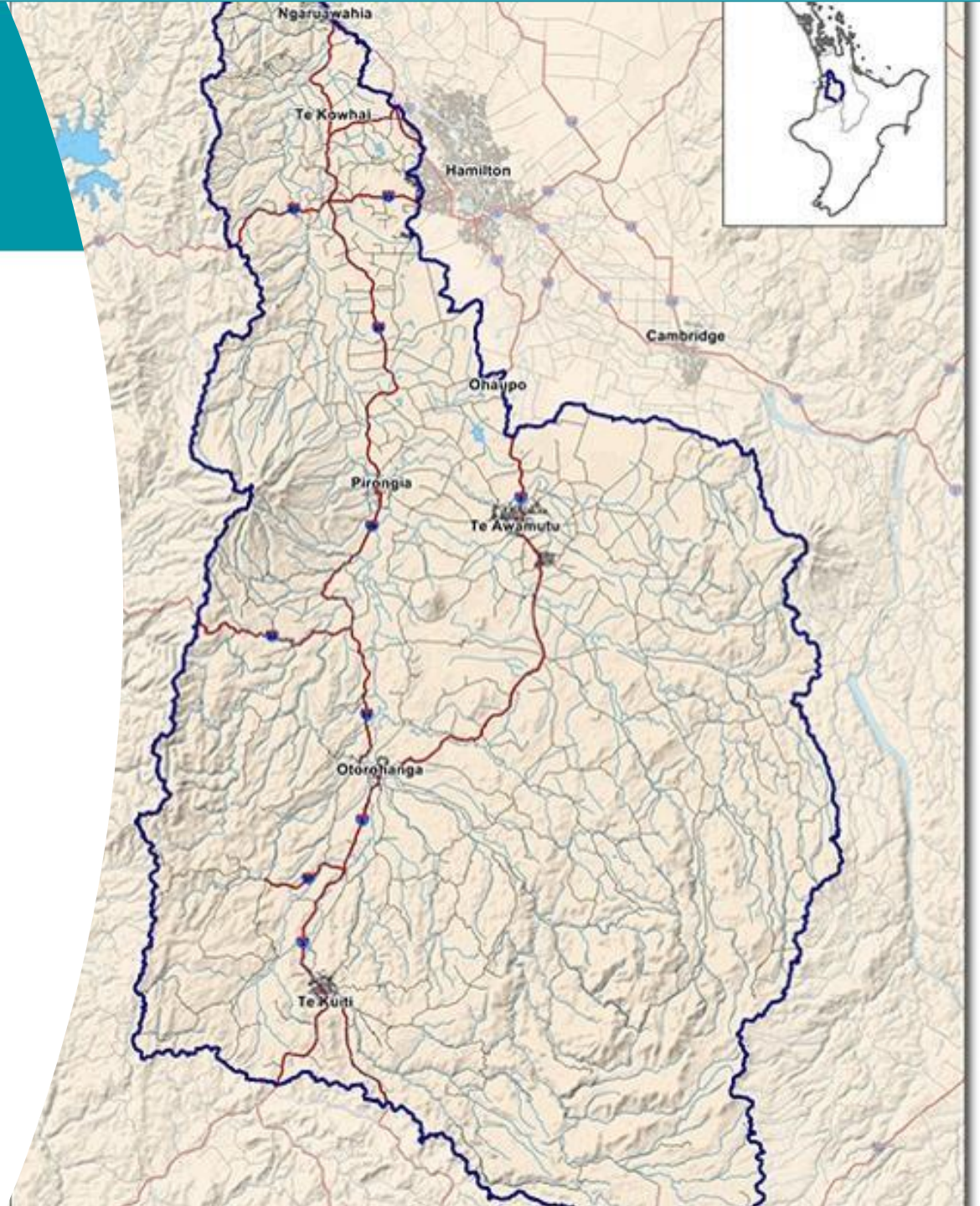


Overview of the Waipā

- 306,569 ha
- Almost 5000km waterways
- Erosion prone soils and high sediment loads
- Mass movement and stream bank erosion



Land clearance history

- Long history of vegetation clearance beginning 1800s
- 1960s-80s: Government provided major incentives to clear marginal land and approval for clearance was widespread

Vulnerability to erosion

River water quality

Loss of mauri, connection, access

Issues

Waitomo scheme

- 1980/90s
- Waitomo Landcare group
- Incentives offered at 75-100%
- By 2014: 118 km of fencing and 1223 ha land retired
- 40% reduction in suspended sediment in Waitomo Stream

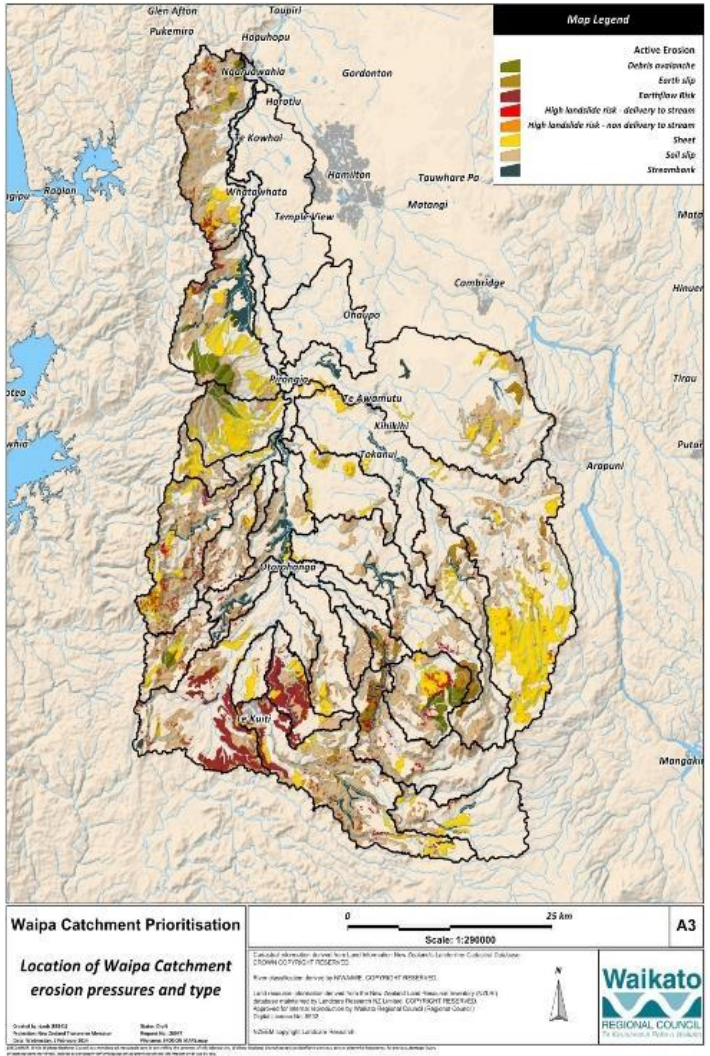
Council incentivised programmes

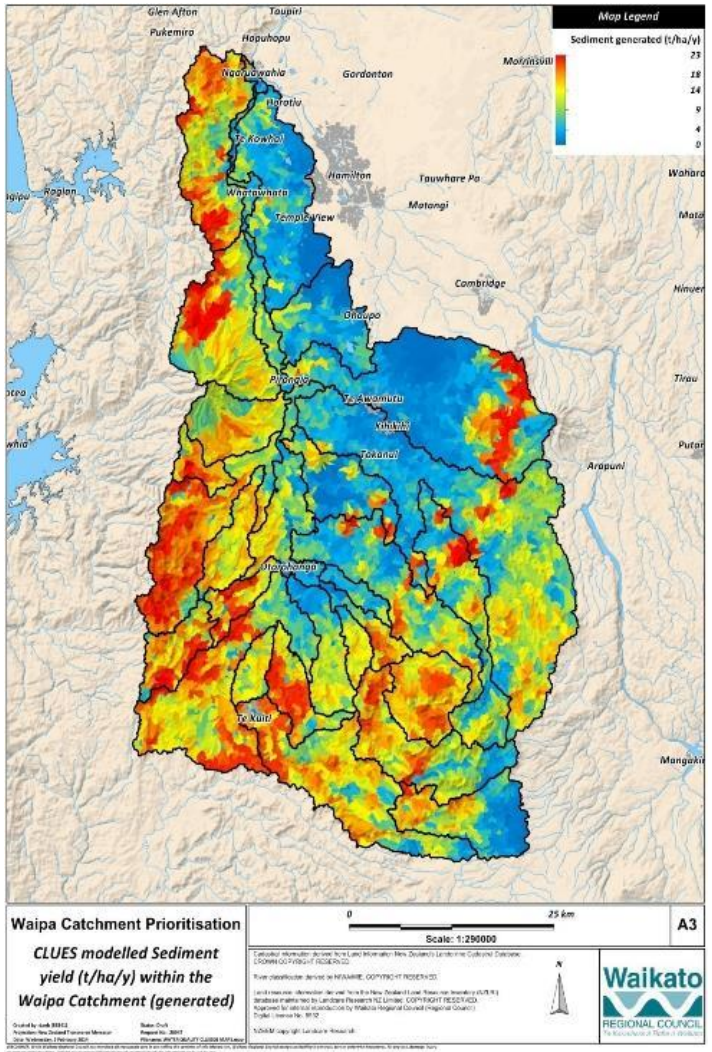
- Clean Streams (2002-2009)
  - Behaviour change regarding stock access
  - 35% grant
- Project watershed (2002-present)
  - 35% Council grant for land management
  - 50% river management

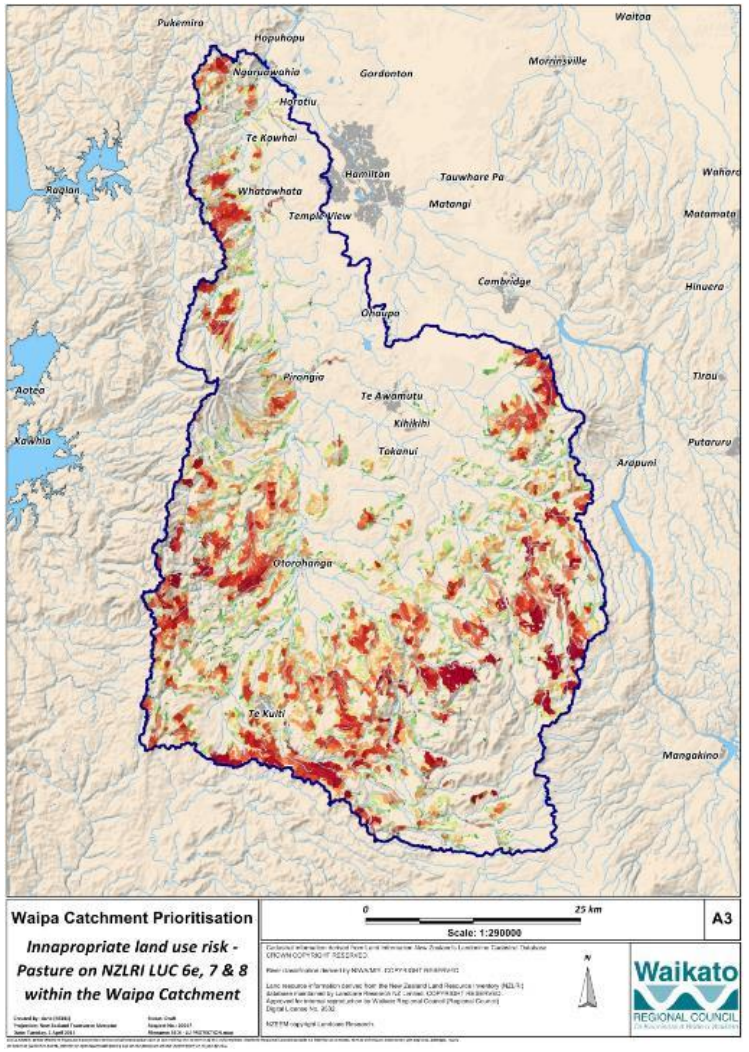
Waipā Catchment Plan inception

- Strong drive from Iwi and Catchment Committee for greater catchment investment
- Desire to base management decisions on cost benefit analysis
- Lack of demonstrable benefits from existing programme
- Completed the Waipā prioritisation spatial modelling
- Potential to leverage co-funding

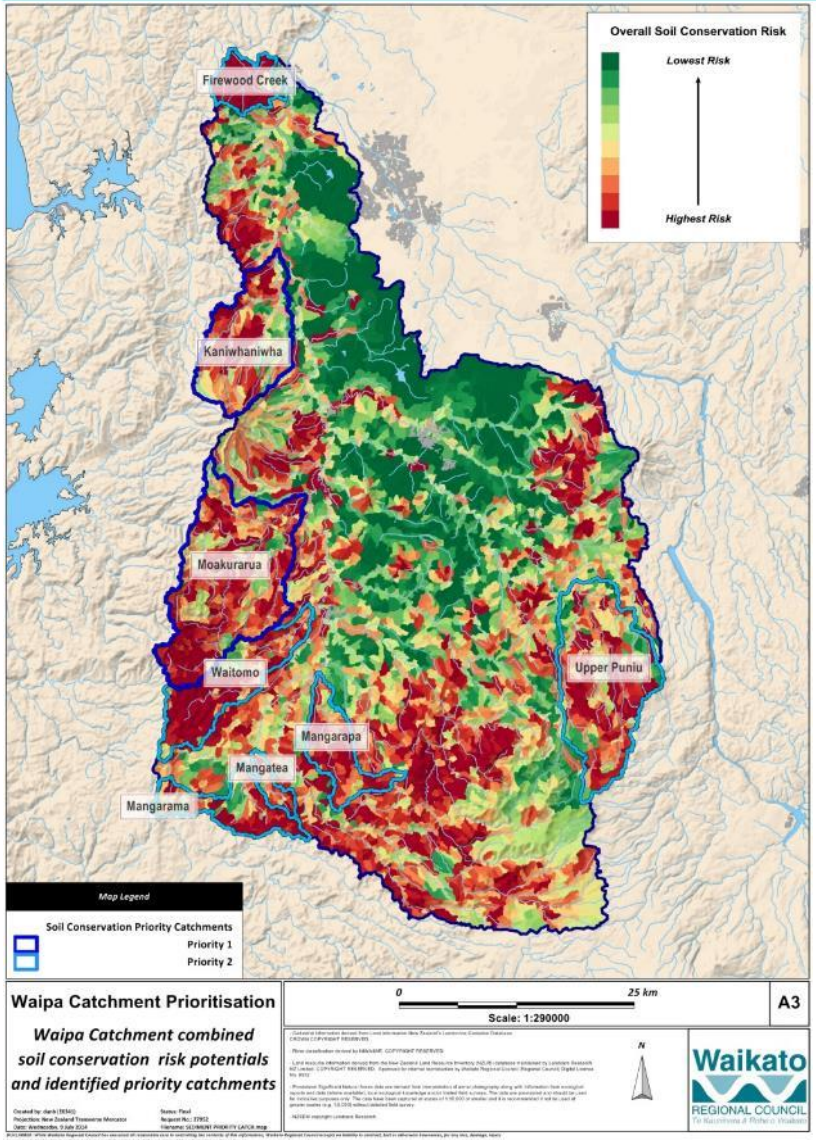
Areas of risk and opportunity







Determining priorities

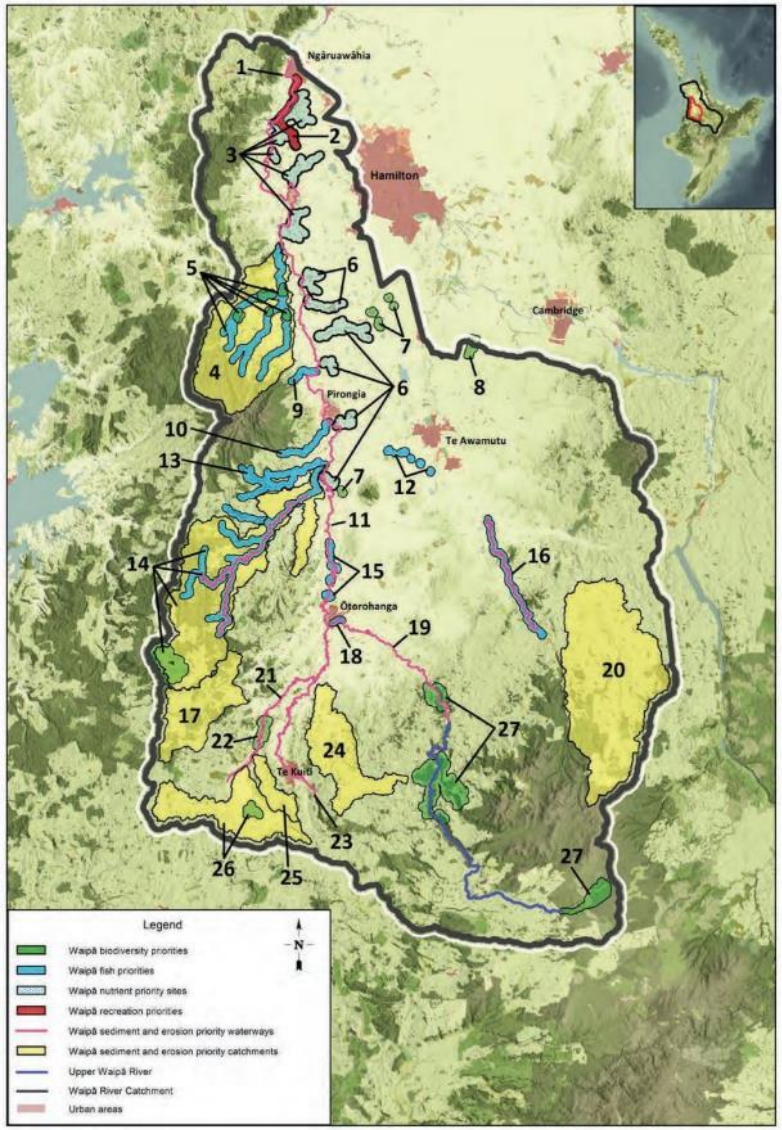


- Estimates of sediment yeild by subcatchment
- Costed mitigations applied to model and potential reductions estimated
- Priority catchments selected where greatest cost benefit was predicted

Goals of the Waipā Catchment Plan (2014)

- Land use matches capability and erosion and sedimention are reduced to give effect to Te Ture Whaimana o te Awa o Waikato.
- Water of a ‘swimmable’ quality and visibly clearer.
- Co-management partners and stakeholders are working collaboratively.

Waikato Waipā River Restoration Strategy



- Models were updated and priorities refined in 2018
- Council's Waipā Catchment Plan project has since been aligned to the River Restoration Strategy
- WRC focus on soil conservation, river management and fish habitat
- Incorporation of iwi priorities and capacity building, biodiversity and climate resilience

Partnership

- First successful application for WCP implementation was 2014
- Intended funding shares 35:35:30
- Two priority 1 catchments – Kaniwhaniwha and Moakurarua
- Since 2014 a total of $12,527,000 has been invested in the programme
- The WRA has contributed $4,596,000 of this.

Kaniwhaniwha catchment gully retirement 2017 and 2022

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Kaniwhaniwha Stream restoration 2017 and 2023

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Moakurarua hill country retirement and revegetation 2018 and 2021

Moakurarua critical source area retirement 2017 and 2021

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Erosion control structures to reduce bank erosion

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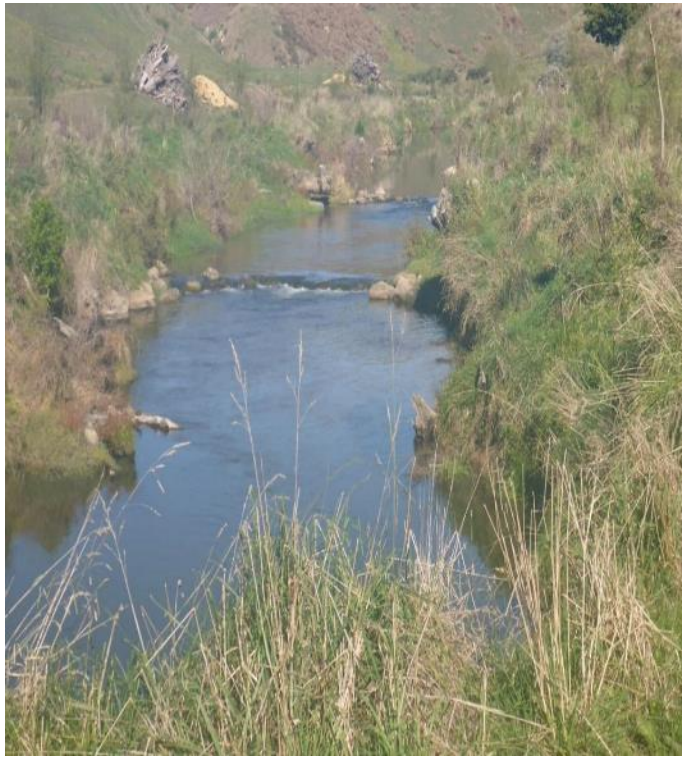
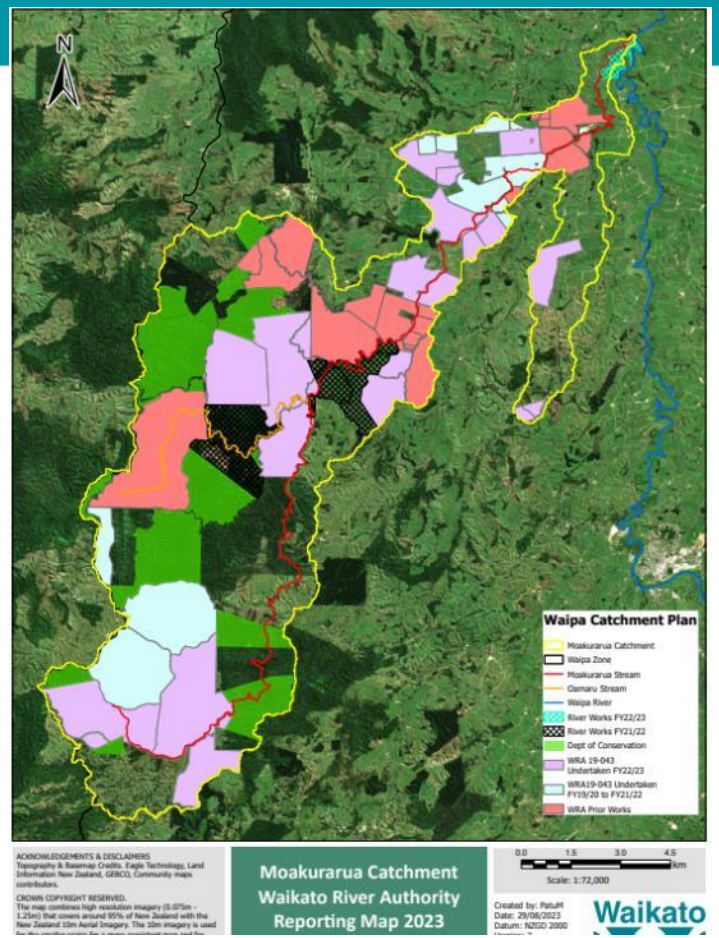
Erosion control and fish habitat

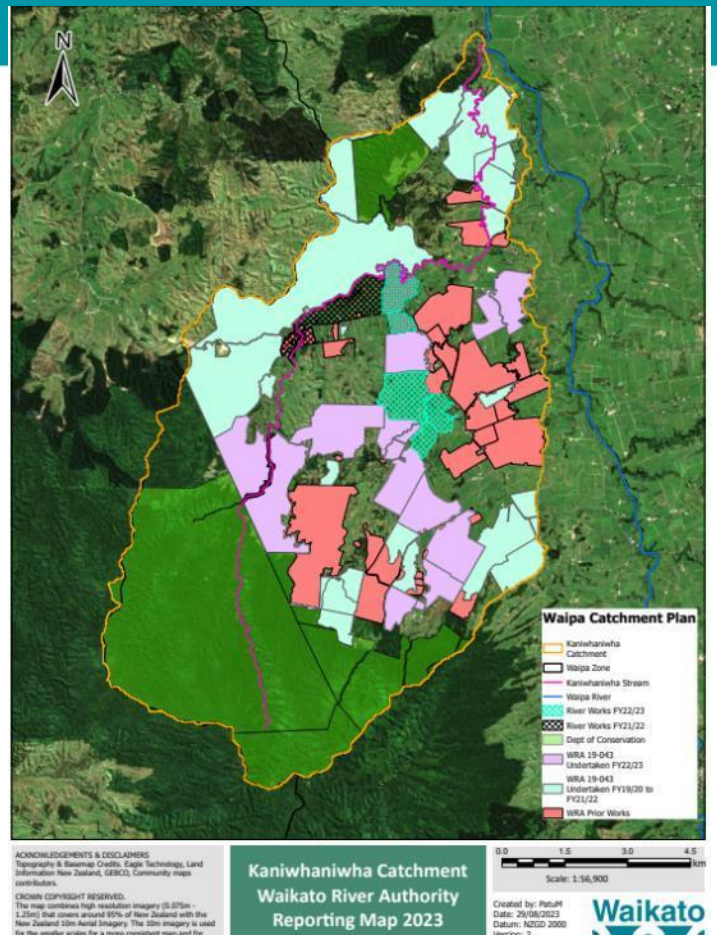


- Gradient control structures reducing bed degradation and bank slumping
- Designed to provide habitat diversity for fish

Outputs – all priority catchments and rivers

Total expenditure (m)	Mixed natives	Fencing (km)	Area retired (ha)	Area afforested (ha)	Poles	River erosion structures
$12.52	494,288	297	1,719	704	15,629	324





Progress in priority 1 catchments

- Moakurarua:
  - 56 properties
- Kaniwhaniwha:
  - 62 properties

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How have things changed?
Moakurarua 2012 and 2021

Supporting iwi capacity building

- Engagement of iwi enterprises
- Approved providers and weighted procurement
- Iwi student intern each year for 3-months
- Support of iwi led projects
  - 6 current projects
  - $280K over 3 years

Monitoring – Moakurarua and Kaniwhaniwha

Monitoring method
Sediment monitoring – bottom of catchment.
Riparian characteristics - fencing, stock access, bank erosion, buffer widths.
Sediment snapshots – sampled during high and low flows
Soil stability – using aerial imagery (WRAPS). 500 sites of 1ha are randomly selected per catchment and an assessment of active erosion is undertaken

Riparian characteristics surveys

- Kaniwhaniwha
  - Length of fenced streambank increased from 49% in 2017 to 65% in 2022
  - Approximately 85% of the surveyed bank length stable with no evidence of erosion
  - Eroding bank length has decreased over time but difference not yet statistically significant

Upcoming work

- Currently in final year of project funded 2019
- Received 3 further years funding in 2023
- Continue focus on priority catchments
- Integration of incentivised programmes with Freshwater Farm Plans

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Acknowledgements

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Catchment landowners

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