Tukituki Land Care

Maharakeke & Pōrangahau

DRAFT

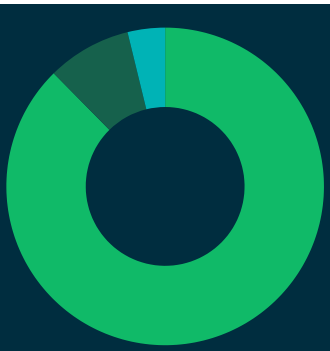
SUB-CATCHMENT PLAN: SUMMARY

MAHARAKEKE & PŌRANGAHAU AT A GLANCE

The Maharakeke and Pōrangahau catchments cover a combined area of 15,219ha and face significant water quality challenges, particularly elevated levels of dissolved inorganic nitrogen and phosphorus. As a result, farmers must take steps to reduce their impact on water quality while also meeting regulatory requirements under HBRC's Tukituki Plan Change.

In 2020, farmers and landowners in these catchments came together to form the Watch Our Water – Maharakeke and Pōrangahau (WOWMAP) Catchment Group to enhance the health of local land and waterways.

The group has undertaken various initiatives, including a large planting project and a stream water testing programme. Additionally, they partnered with Massey University to develop solutions for reducing contaminant runoff from agricultural land. This collaboration led to the construction of two edge-of-field mitigation structures on local farms - the first of their kind in Hawke's Bay.



- Pasture
- Arable
- Exotic Forest

Land use in both catchments is similar, with pasture making up the majority (92 percent), arable land accounting for five percent in Pōrangahau and four percent in Maharakeke, and exotic forest covering less than four percent in total.

"Tukituki Land Care (TLC) is tackling the big issues sub-catchment by sub-catchment, to piece together The Big Picture."

Richard Hilson
Chair, Tukituki Land Care

SCAN FOR FULL REPORT

MAHARAKEKE & PŌRANGAHAU:

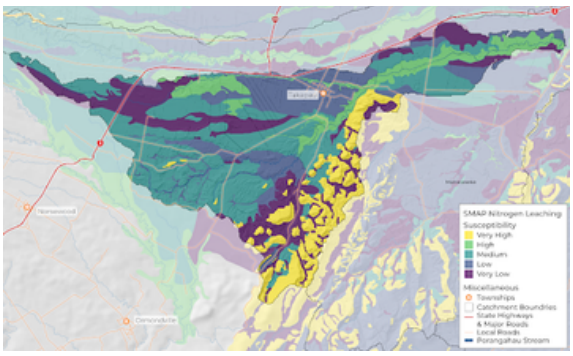
LANDSCAPE CONTEXT

The WOWMAP catchments are dominated by flat country in the centre of the catchment with rolling to steep country in the south, centre and east. The topography and soils have a particular way that they interact with nitrogen and phosphorus. The soils left behind by wetlands will have a low nitrogen loss profile and will often denitrify nitrogen rich water. However, some soils (like the Pallic soils) are highly erodible, and have a reduced ability to bind phosphorus to the soil, meaning phosphorus will easily leave the soil once in contact with water.

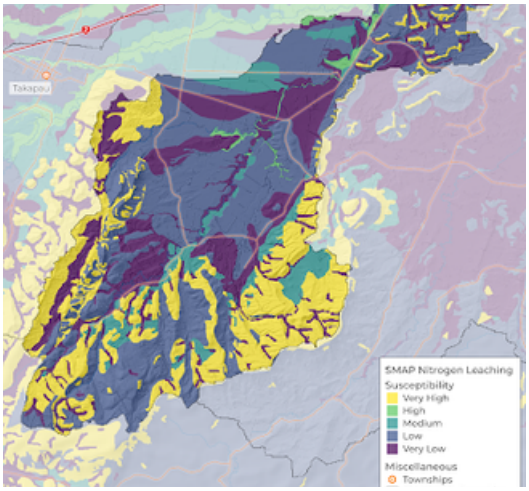
The WOWMAP catchments exhibit significant variation in nitrogen loss, with some areas experiencing high levels while others remain low. Similarly, erosion levels fluctuate across the catchment, with certain areas more prone to soil loss than others. Erosion mapping completed for The Big Picture highlights where hill country erosion is most likely to occur, providing valuable insights for targeted mitigation efforts.

FULL REPORT AT WWW.TUKITUKILANDCARE.ORG/WOWMAP

SMAP Nitrogen Leaching Susceptibility - Maharakeke



SMAP Nitrogen Leaching Susceptibility - Pōrangahau



WATER QUALITY

The table below presents water quality indicators for the Maharakeke and Pōrangahau catchments based on a five-year rolling average. The standard reflects water quality thresholds set by the Tukituki Plan or national guidelines. Both catchments exceed HBRC's DIN and DRP limits. The Pōrangahau catchment has a greater issue with elevated dissolved inorganic nitrogen (DIN), while the Maharakeke catchment is more affected by high phosphorus levels.

Water Quality Parameter	Pōrangahau	Maharakeke	Standard
Nitrogen (DIN)	2.255 mg/ L	1.386 mg/ L	0.8
Phosphorus (DRP)	0.025 mg/ L	0.049 mg/ L	0.015
Bacteria (E.coli)	145(count)	100 (count)	260
Freshwater invertebrates (MCI)	86.7 (index)	84.5(index)	100
Sediment (Turbidity)	0.74 mg/ L	0.97 mg/ L	4.1 FNU (light)

CONTEXT AND CHALLENGES

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LOCALLY IDENTIFIED PRIORITIES

A common theme of the December 2024 TLC workshop in the WOWMAP catchments was the need for improved education and engagement. Farmers expressed a strong interest in short, practical videos on mitigation measures, supported by real-world data and cost comparisons to guide decision-making.

A significant challenge raised was the complexity of water quality limits and their practical feasibility. Farmers questioned the basis for specific targets—such as the 0.8 mg/L nitrogen limit—and whether improving Macroinvertebrate Community Index (MCI) scores is achievable, given the natural characteristics of local streams.

There was also a call for clearer, more accessible information on nitrogen and phosphorus cycles. In particular, farmers wanted better guidance on how various mitigation strategies, such as wetlands and detention bunds, impact nutrient losses. Providing straightforward, farmer-friendly resources on the most effective approaches would enable landowners to make informed decisions that balance water quality improvements with farm productivity.

Another area of interest was carbon dating local springs to gain a deeper understanding of groundwater movement and nitrogen flow. A landowner in the Maharakeke catchment recently discovered that two springs just 20 metres apart had drastically different water ages, raising questions about how high-nitrogen springs function.

Additional topics discussed included the need for clearer communication of findings from Massey University's trial sites and concerns about the spread of cow cress in the lower catchment.

SCAN FOR FULL REPORT

STOCK EXCLUSION

A 2014 survey by HBRC identified Maharakeke and Pōrangahau as having some of the poorest riparian stock exclusion in the Tukituki catchment and phosphorus levels were higher than most other monitored sites within the catchment. Since then, a huge amount of work has been done by local landowners to exclude stock from waterways as well as a significant amount of riparian planting to reduce contaminants in the waterways.

MAHARAKEKE & PŌRANGAHAU: SUMMARY AND ACTIONS

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Objective area →	Water Quality	Land use and appropriate planting	Informed decision making to implement good practice on and maintain economic viability
Challenge	High nutrient levels, but little information about where it is coming from or how to manage it.	Planting is a key activity to reduce soil loss, build alternative revenue through the ETS and increase flood resilience. However information is lacking to help decision making.	The major challenge is to support landowners make the best decions possible to reach outcomes.
Impact	Waterway health reduced. Decline in aquatic biodiversity Regulation risks.	Investment in afforestation that doesn't meet catchment or landowners objectives.	Studies indicate farm planning can make an marked difference for water quality and increase farm efficiency.
Priority action	1. Focus on sediment management practices on highly eroded land. 2. Map, implement and measure effectiveness of edge of field mitigations. 3. Implement high priority good practice on farms.	Build and communicate a decision support tool for planting to meet multiple outcomes. Support farmers to make appropriate decisions through effective communication and training.	Promote the use of the good practice decision support tool and provide expert advice where needed.

WANT MORE DETAIL? HEAD TO WWW.TUKITUKILANDCARE/WOWMAP

Check out the online TLC Farmer Toolbox at tukitukilandcare.org/toolbox

MAHARAKEKE & PŌRANGAHAU: NEXT STEPS

- Get involved with the WOWMAP Catchment Group to review the TLC Catchment Plan, share knowledge and coordinate actions.
- Develop erosion management strategy. Consider poplar planting, oversowing with legumes, strategic fencing to retire or manage grazing, and native or exotic afforestation. Use TLC's Surface Erosion Tool*, TLC's On-Farm Action Planning Tool* and TLC's Plant Selection Tool*.
- Address water quality issues, in particular P and N. Use TLC's On-Farm Action Planning Tool*.
- Identify potential sites for wetlands, dams or detention bunds. Use TLC's Water Runoff Mapping Tool*.
- Connect with local advisors* for tailored advice and potential funding opportunities.
- Commit to TLC's THR3E: three practical steps you can implement on your farm over the next three years.

*** The TLC Toolbox and the full catchment report are now available on the TLC website www.tukitukilandcare.org.**