

TUKITUKI WATER SECURITY PROJECT

Working together to progress water security in Hawke's Bay

Executive Summary

Climate change is exacerbating water security issues in the Hawke's Bay region. The climate change prognosis for the region is one of rapid drying and higher temperatures; the increased incidence of droughts is evidence of its arrival. These are likely to intensify, and the health of the people and their communities are under threat if water security is not addressed.

The Tukituki Water Security Project (TWS) is a 'whole of Hawke's Bay' project to address water security for the region. The two key drivers of the project are giving effect to Te Mana o te Wai and increasing community resilience in the face of climate change.

At its core, Te Mana o te Wai is about ensuring the health and wellbeing of water is protected and human health needs are provided for, before enabling other uses of water. The primacy of Te Mana o te Wai has been written into the National Policy Statement for Freshwater and whilst it requires local interpretation, it recognises that Mana Whenua have responsibilities to waterways which lie at the heart of their identity and culture.

There is no doubt that the Tukituki River and its associated tributaries is ecologically challenged, with extended low flows endangering aquatic life and the health of the catchment and its people. New environmental regulations and community expectations require a higher standard of care for the environment, and these expectations will increase while the effects from climate change accelerate. Achieving water security for the region will require a multi-faceted approach to ensure more water is available for environmental remediation and to ensure the health of our people.

A range of options were considered by expert advisory firm Lewis Tucker who were engaged by the project steering group to undertake an assessment of water security options for the region, including both small and catchment-scale storage on the Makaroro River, farm scale storage infrastructure, accessing 'Tranche 2' groundwater, managed aquifer recharge and reallocating current water takes. Improving land management practices to best practice and ensuring adherence with district plans is already in place and will be ongoing.

Acceleration of the effects from climate change mean that a combination of measures will be required to provide future resilience. After a comprehensive assessment, Lewis Tucker has found that in combination of other water security measures, catchment-scale storage on the Makaroro is the most compelling option capable of delivering a significant amount of additional water to address water security. Doing nothing in the context of catchment-scale storage would mean a reliance on what are currently a set of unproven and complex alternative water access options which at best have a localised impact within limited areas in the Tukituki Catchment.

Water security is something that we can no longer ignore in Hawke's Bay.

The issues of water security and the health of the Tukituki River, its tributaries and its people are becoming more urgent and are top of mind for hapū along the length of the river, and for everyone in the wider Hawke's Bay community.

Over the past 12 months and following the recent drought in Hawke's Bay, there has been a fresh look at how to provide improved water security for the region. This work, particularly from the Hawke's Bay Regional Council, is a good start and will likely involve a multi-faceted approach including improved water use efficiency, as well as increased minimum flows supported by the capture and storage of additional water.

What is clear though, is that as climate change continues to impact New Zealand, each province will need to address its own key regional pressures. In Hawke's Bay, one of the key priorities has to be improving the environmental and health outcomes of those reliant on the Tukituki River that runs the length of Hawke's Bay.

The Tukituki River is one of the main 'arteries' supporting the region. It starts near the Southern end of Hawke's Bay in the Makaroro catchment and runs the length of the province where it comes out in the sea after passing behind Te Mata Peak. In the absence of a meaningful intervention, the prognosis for the health of the Tukituki River, and for the resilience and wellbeing of the communities it supports, is bleak.

That is why iwi and local community leaders came together to form a steering group - to oversee the Tukituki Water Security Project that looks at the options for solving those two key issues, that is water security and restoring the health of the river and its people. The group has sought to clarify the viable options available for providing long-term water security within the Tukituki Catchment in the context of Te Mana o te Wai. From the outset there has been a shared desire and commitment between iwi and community to get it right.

The river doesn't have a voice, so we are speaking on its behalf. All of those involved with this project have a strong desire to ensure that future generations of Hawke's Bay citizens can benefit from this work to make the region one of New Zealand's best living environments.

The Tukituki Water Security Project

The purpose of this project has been very clear from the outset: to address strategically important environment, water and health issues within Hawke's Bay, create jobs, fast track adaptation in response to climate change, and develop the most environmentally friendly water security strategy in New Zealand. The concept of Te Mana o te Wai – putting the health of the river first – continues to guide this purpose.

The project itself is a fresh look at the needs of the catchment and a genuine assessment of how this purpose can practically be met using a range of measures, including the potential for water storage. There are no predetermined outcomes, and this isn't a re-run of previous water projects. Instead, the project has focused on rescoping a strategy for water security that explicitly prioritises Te Mana o te Wai, environmental remediation in the face of climate change, community needs and then those of commercial water users and all others in that order.

The steering group has been directly engaging with key iwi, community, regional and national leaders seeking support for a rescoping of water security in this region. In April 2021, the group also engaged specialist advisory firm Lewis Tucker to complete the rescoping and revalidation of the business case for the Tukituki Water Security Project.

Lewis Tucker was tasked with undertaking a full assessment of water security options for the Tukituki Catchment in the context of Te Mana o te Wai. Each option assessed was considered

against its suitability with respect to its physical accessibility, geotechnical factors, engineering feasibility, regulatory compliance and economic viability.

Lewis Tucker Report Findings

In arriving at its recommendation, Lewis Tucker prioritised the following hierarchy of uses:

1. Te Mana o te Wai.
2. Environmental remediation in the face of climate change.
3. Community needs and human health.
4. Commercial water use.

To be clear, the priorities for water use begin with the health of the river and addressing environmental remediation in the face of climate change. The ability to provide more water flow to be used for commercial purposes can only be achieved once these other needs have been met.

There is no doubt that the Tukituki River and its associated tributaries is ecologically challenged, with extended low flows endangering aquatic life and the health of the catchment and its people. New environmental regulations and community expectations require a higher standard of care for the environment, and these expectations will increase while the effects from climate change accelerate. Achieving water security for the region will require a multi-faceted approach to ensure more water is available for environmental remediation and to ensure the health of our people.

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This determination was based on the following:

1. **It gives effect to Te Mana o te Wai:** The Te Mana o te Wai hierarchy of uses is clear, and the application of Te Mana o te Wai creates a platform for a genuine and transformative partnership between iwi and the wider community.
2. **Tangata whenua:** The creation of a lake on Makaroro is not new. Oral history credits taniwha within the Ruataniwha Plains as creating the Waipawa and Tukituki tributaries by draining a lake that was once there.
3. **The ability to limit climate change impacts:** Climate change impacts are increasingly well understood within the community as are the requirements to address it. Importantly, the Makaroro catchment sits in a favoured area to collect rainfall from weather patterns more likely under climate change scenario modelling.

4. **Doing nothing is not a viable option:** Not proceeding with the Project or consciously choosing not to utilise the portfolio of (former RWSS) consents held by Water Holdings is denying restoration opportunities and communities in the Tukituki and Southern Heretaunga of the benefits of water security at a time when climate change is depleting water availability.
5. **Confidence in the Hydrology continues to improve:** The reliability of the hydrological data supporting the Makaroro Storage has improved materially since the assessment of the Ruataniwha Water Security Scheme (RWSS).
6. **Land use trends require enhanced water security:** The trend to higher value land uses has accelerated, however future access to reliable water is a major constraint to that progression continuing much further.
7. **Demand drivers are highly likely to support the TWS:** The combination of the factors above materially reduce the 'demand risk' issue that dominated much attention in the RWSS business case.
8. **The compelling economics:** The proposed Makaroro site provides a materially lower cost of water and at a scale that ensures water security for the catchment and in the long term, rather than short-term localised solutions.

Viability of the Makaroro storage option

Plan Change 6 has requirements for increased minimum flows that will not be able to be met in the summer and autumn low flow periods without the provision of more water to augment these flows. Capturing surplus water during peak flows and storing this for release during low flow periods remains one of the best options to provide for water security and ecological health.

Lewis Tucker recommends a catchment-scale storage dam on the Makaroro River that provides (up to) a 20m³ environmental flow for the Tukituki main-stem in order to maintain actual minimum flows under an extreme drought scenario. Technical experts are of the opinion that under climate change, the storage dam will benefit from increased westerly rain 'spillover'. The larger scale dam size refill reliability is sound and the cost per m³ of water is exceptionally good given the reservoir shape.

The Makaroro storage alternative is capable of delivering 104m³ of water at a 97% reliability level. Assuming circa 84m³ is available for consumptive purposes, the TWS project team is of the view that the demand for this water will be high, and materially greater than the business case that supported the viability of the RWSS project. The view is that the project can both attract sufficient customers and offer returns to private sector investors at a 'simplified' water price of circa \$0.30 per m³. The water price assumes that the environmental flows (20m³) are financed via the public sector.

The portfolio of consents held by Water Holdings were granted for 35 years and have four years to run before they will lapse. They are fit for purpose with regards to the required infrastructure under the catchment-scale Makaroro alternative. Timing is a key risk given the necessary consents lapse clause has only four years to run. If the TWS project is going to proceed, it needs to start now.

What this means for the region and next steps

There is very limited (if any) unallocated surface or ground water within the Tukituki catchment that can be used to meet the needs of Te Mana o te Wai, environmental remediation and the wider community needs other than what is potentially available through the construction of a catchment-scale storage dam on the Makaroro site that utilises the resource consents currently held by Water Holdings Limited.

The conclusion above supports the steering group's initial view that water security is a key strategic issue for the wider Hawke's Bay region, and that there are achievable means of addressing this for future generations. The Lewis Tucker report provides a very robust base for the steering group to work from and the focus has now shifted to implementing the project recommendations. Next steps include:

1. Working with Mana Whenua to secure access to the 22 ha of DOC land that sits in the dam footprint. Iwi are clear that this land should have been part of the Treaty of Waitangi settlement decision and a Local Bill is proposed as the best way to address this.
2. Accelerating discussions with community, regional and national leaders seeking support for the project and exploring options for underwriting funding for the proposed environmental flows in the Tukituki Catchment.
3. Securing funding to appoint a full-time project implementation team.

The steering group will keep the community updated as we work collaboratively to develop a solution that has water security and restoring the health of the river and its people at its heart.

A more in-depth report summary is available [here](#).