Water Services Authority
Taumata Arowai

Report on Wastewater Treatment Arrangements that respond to Māori values

Executive summary

The Water Services Authority - Taumata Arowai is the water services regulator for Aotearoa New Zealand and is currently developing wastewater environmental performance standards relating to monitoring and reporting arrangements for overflows, discharge to water, discharge to land, and disposal of biosolids. As part of the development of new wastewater standards, Taumata Arowai has undertaken engagement with mana whenua and local councils to develop six case studies for the Gisborne, Taipā, Rotoiti-Rotomā, Cambridge, Pukekohe and Porirua wastewater treatment plants.

The case studies provide insights into iwi and hapū values and perspectives relating to wastewater treatment and how wastewater treatment arrangements could best respond to these. A range of different experiences across different locations are captured in the case studies – those that are urban, rural, have large and small population service areas, and involve different environmental considerations and treatment options. This report explores these concepts and the key insights gathered are being used to guide the development of the new national wastewater standards.

Summary of key insights

- Tikanga Māori is recognised as the first law of Aotearoa which guided the use and protection of natural resources, including water. Māori perspectives towards wastewater are underpinned by the belief that water is a taonga, and that the health and wellbeing of people is directly connected to the health and wellbeing of waterbodies. This connection requires mana whenua to practice kaitiakitanga and actively protect and care for waterbodies in their rohe.

- The concepts of tapu and noa are central to understanding Māori perspectives on wastewater management. Wastewater is tapu and must undergo a process of whakanoa before it can be reintroduced into the environment. For this reason, Māori do not as a general rule support the discharge of treated or untreated wastewater into freshwater or coastal waters and prefer land-based discharge – although there are examples where mana whenua have accepted water-based discharge where treatment levels are sufficiently high.

- There are a number of legislative and regulatory mechanisms that provide for mana whenua engagement and involvement in wastewater management processes. These mechanisms, including joint management agreements and cultural impact assessments, have been used to facilitate collaboration and information sharing between mana whenua and local government. Treaty settlements have also given rise to innovative arrangements that seek to protect the health and wellbeing of waterbodies. These arrangements must be upheld when considering the development of standards.

- The extent to which mana whenua have been engaged and involved in wastewater management processes varies from rohe to rohe. Some mana whenua groups experienced little to no engagement and were forced to take more formal legal avenues to ensure their rights and interests were respected. Other mana whenua groups experienced early and meaningful engagement by local council, leading to positive relationships and pragmatic solutions.

- The case studies illustrate good examples of where wastewater treatment upgrades have incorporated Māori values, tikanga and mātauranga to identify solutions that have led to

improved environmental and cultural outcomes. The case study insights highlight the importance of high-quality engagement, and building strong and meaningful relationships with mana whenua in order to achieve these improved wastewater treatment outcomes for the entire community. The case studies also highlight the challenges that exist for iwi and hapū where appropriate engagement has not occurred, decisions are made that contrast with mana whenua values, and mana whenua capacity is strained. Resourcing is critical to ensure iwi and hapū can engage with councils and other stakeholders, alongside having adequate technical support. All insights provide an opportunity to learn and make improvements to wastewater management through the setting of national standards.

In conclusion, the development of wastewater environmental performance standards by Taumata Arowai represents a significant opportunity to integrate Māori values and perspectives into wastewater management in Aotearoa New Zealand. The engagement process and resulting case studies have provided valuable insights into the importance of mana whenua involvement in planning and decision-making processes for wastewater treatment approaches. These insights underscore the need for high-quality engagement, strong relationships, and adequate resourcing to ensure that wastewater treatment solutions are culturally appropriate and environmentally sustainable. Incorporating these learnings into the development of a new national set of standards will support improved environmental and cultural outcomes that reflect the interconnected health and wellbeing of people and waterbodies. This holistic approach will not only honour the principles of the Te Tiriti o Waitangi but also foster a collaborative pathway towards a healthier and more resilient approach to wastewater management for all communities in Aotearoa New Zealand.

1 Introduction

1.1 Purpose

Ernst and Young Strategy and Transactions Limited, Ernst & Young Tahi Limited (EY Tahi), and Tonkin + Taylor were engaged to produce a suite of research reports that propose wastewater environmental performance standards, monitoring and reporting frameworks for wastewater treatment plants (**WWTPs**) and networks in New Zealand. These include:

- Case studies of wastewater treatment arrangements that respond to Māori values **(this report).**
- Wastewater environmental performance standards for discharge to water;
- Monitoring and reporting arrangements for wastewater network overflows;
- Wastewater environmental performance standards for discharge of effluent to land; and
- Wastewater environmental performance standards for biosolids.

1.2 Scope

The scope of this report is to identify and describe examples of wastewater treatment arrangements that give effect to Māori values.

This report includes:

- a summary of tikanga, mātauranga and Māori perspectives and values in respect of wastewater treatment (section 3 of this report);
- a high-level overview of engagement and participation processes that have led to quality Māori involvement in design, monitoring or reporting arrangements relating to wastewater treatment. This includes an overview of relevant legislative and regulatory mechanisms. (Sections 4 and 5 and of this report);
- six case studies that demonstrate how wastewater treatment arrangements have (or have not) upheld Māori rights and interests and responded to Māori perspectives and values, and insights arising from these case studies (insights are summarised in section 6 of this report and full case studies provided in Appendix A).

A glossary of Māori terms used in this report is provided in Appendix B.

The contents of this report have been used to inform the development of the four environmental performance standards reports outlined in section 1.1. The environmental performance standards reports will be considered by a technical review group to support the development of wastewater national standards.

1.3 Methodology

A mixed methodology approach was used to prepare this report which included a high-level desktop and literature review, and targeted engagement with mana whenua to develop six case studies.

Key steps undertaken included:

- Reviewed key literature relating to Māori values, perspectives, mātauranga and tikanga regarding wastewater management, and literature relevant to the regulatory framework for wastewater management. The draft report, *He Pūkenga Wai, He Pūkenga Kōrero*[1] served as a starting point for this review.
- Identified a long-list of possible case studies relating to recent WWTP upgrades that involved

[1] Aurecon et al. (Draft - unreleased). He Pūkenga Wai, He Pūkenga Kōrero

mana whenua in the resource consenting, planning and/or implementation phases.

- Assessed the long list of case studies against a number of factors to identify a short-list. These factors included population size, regional location, urban vs. rural, discharge type, innovative technologies, and level of engagement. It was important to ensure the case studies reflected a mix of these different factors.
- Confirmed six case studies for the purposes of informing this report (Gisborne WWTP, Taipā WWTP, Rotoiti-Rotomā WWTP, Cambridge WWTP, Porirua WWTP and Pukekohe WWTP).
- Prepared for and undertook engagement with mana whenua who were part of the six case studies. Engagement was led and facilitated by Taumata Arowai officials and supported by EY Tahi. Official minutes were circulated to participants following each engagement hui to confirm the accuracy of the information that was captured.
- Met with councils and consenting authorities involved with each of the case studies to understand broader perspectives.
- Reviewed prepared summaries of supporting documentation provided to Taumata Arowai by mana whenua representatives.
- Integrated key insights from the case studies into the four environmental performance standards reports.

Taumata Arowai intend to circle back to the case study participants with the case study report, case studies write-ups, and technical reports for final feedback ahead of decisions being made by Government.

1.4 Limitations of this report

The methodology employed gives rise to limitations which are noted below:

- The desktop review undertaken in the preparation of this report was limited to readily available and relevant documents. We recognise that there is a wealth of technical and cultural knowledge that would not have been surfaced or included through this approach. If further technical and cultural insights are required, we suggest building on the work contained in this report with a particular focus on identifying cultural knowledge repositories in this space.
- The case studies included in this report will not capture the unique and varied experiences of all mana whenua groups across New Zealand. However, the prioritisation and selection process undertaken means that we are confident the case studies do provide meaningful and useful guidance to the development of national standards.
- Outreach and engagement was undertaken for a further three case study sites, however no case study from the South Island was able to be incorporated into this report due to iwi and hapū capacity and availability. Further engagement has been and will continue to be undertaken by Taumata Arowai with mana whenua in the South Island to support the wastewater environmental performance standards work programme.

2 Te ao Māori perspectives on wastewater management

This section provides a summary of key insights from a high-level literature scan of tikanga, mātauranga, and Māori values and perspectives in respect of wastewater treatment. This section does not provide an in-depth analysis of tikanga and mātauranga Māori, but rather provides high-level commentary and some key examples to support understanding of the underlying principles surfaced through the case studies.

2.1 Tikanga and mātauranga Māori concepts and practices

The Supreme Court has found that tikanga was the first law of Aotearoa New Zealand[2] and guided how iwi and hapū navigated the use natural resources and responsibilities toward the environment. Mātauranga Māori embodies the various hapū and iwi systems of knowledge that has developed over time through observation and interaction with the natural environment. Each hapū and iwi have their own tikanga practices and mātauranga that have been developed at place. As such, only hapū and iwi can be experts of their own tikanga and mātauranga. It is a widely accepted view that water is a taonga that possesses mauri (spiritual life force), and Māori have a special relationship with water based on whakapapa with their ancestral rivers, streams, coasts and oceans. Due to these relationships, Māori have obligations and responsibilities to care for and protect the mauri of water and the wider environment. These responsibilities are expressed through kaitiakitanga and manaakitanga to undertake important cultural practices in te ao Māori.

The wellbeing of water, people and the environment is interconnected. Water is of vital importance due to its role in sustaining our communities. Māori adopt a holistic, whole of catchment approach to water management – ki uta ki tai (from the mountains to the sea). This approach is long-term and intergenerational.

Some general examples of mātauranga and tikanga practices that can be applied to water are outlined in the table below. Note that these descriptions are high-level and have been condensed for brevity.

Table 1: Examples of tikanga concepts and practices

Example	Description
Mana	In simple terms, mana refers to an individual or groups authority, power and control which can be inherited or attained in various ways (e.g. through whakapapa). Mana is upheld or enhanced through tikanga practices (e.g. collecting kaimoana to demonstrate manaakitanga to guests) and conversely can be reduced if tikanga is not upheld.
Rangatiratanga	Rangatiratanga is the right of a group to exercise that authority over their own affairs, similar to the concept of self-determination. Each hapū and iwi have distinct authority to set their own processes, protocols and procedures for the use of and protection of natural resources within their tribal boundaries.
Tapu and noa	The tikanga concepts of tapu and noa are important to understand Māori perspectives on wastewater management. Things that are tapu are seen as restricted from everyday use, while things that are noa are unrestricted. Tikanga provides rules that govern how things that are tapu and noa can interact, or how things that are tapu can transition to a noa state.
Mauri	Mauri is a spiritual life essence and is imbued in all things. For many Māori, the mauri of water provides a strong indicator of the health and wellbeing of the surrounding environment. The mauri of water can be assessed in numerous ways, for instance, by looking at the colour and density of the water, the amount of marine life, and flow rates. The mauri of a water body can be damaged by mixing water from different sources. As such, some Māori communities had tikanga to help avoid the cross-contamination of water sources. This separation ensures that the mauri of each water body is respected, prevents their degradation and allows it to rejuvenate itself and maintain its natural balance.[3]

[2] Ellis v The King [2022] NZSC 114.

[3] Royal, T. A. C. (Ed.). 2003. The Woven Universe: Selected readings of Rev. Māori Marsden.

Example	Description
Rāhui	Rāhui are prohibitions on human activity or interaction with an area or place and are usually time bound. Rāhui are often put in place where there has been a death in the area, due to environmental contamination and pollution, or to ease pressure on a particular natural resource.
Kaitiakitanga	Māori have a deep connection to ancestral rivers, streams, coasts and oceans. Due to these relationships, Māori have obligations and responsibilities to care for and protect the mauri of water and the wider environment. These responsibilities are expressed through kaitiakitanga. Traditionally, kaitiaki (guardians) have often been entrusted to protect different parts of the environment, particularly bodies of water.

2.2 How tikanga and mātauranga Māori relate to and inform approaches to wastewater management

Human waste is inherently tapu due to the impact that waste can have on the health of people, and therefore wastewater must undergo a process of whakanoa before it can be safely integrated back into the environment. It is culturally abhorrent to mix wastewater with fresh and coastal waters due to its tapu nature, and the practical risks to human health. It is particularly offensive to discharge wastewater to areas where food is gathered. This view is supported by prominent Māori scholars like Hirini Moko Mead, who notes:

> *"A body part of a living person is tapu. Excreta is tapu ... There is no problem [in terms of Māori customary laws] with the return of excreta or body parts to Papatūānuku ... What is abhorrent is the idea of associating biosolids with the food chain."*[4]

Poor wastewater treatment processes can significantly impact on Māori cultural values. Many kaumatua can recount stories of waterbodies that were once abundant with food that provided sustenance to the local people. Over time, wastewater discharge into freshwater and coastal waters has caused pollution, environmental degradation and prevented mana whenua from harvesting food safely. The impacts of this on mahinga kai have also affected tribal identity, the ability to exercise tikanga, and contributed to a loss of local mātauranga.

For the reasons outlined above, as a first principle, Māori do not support the discharge of wastewater (treated or untreated) directly into freshwater and prefer land-based discharge, acknowledging that in many instances land-based discharges impact freshwater bodies through groundwater. This position was reaffirmed through case study engagement. While this principle can present a challenge to existing wastewater treatment practices in New Zealand, there are many examples of mana whenua working with local authorities to reach pragmatic solutions that are culturally responsive and lead to improved environmental outcomes. Examples include discharging wastewater to land before it reaches water, as a means of whakanoa, to enable the safe integration of wastewater into the receiving environment. These examples are explored in further detail in the full case studies provided in Appendix A.

It is important to acknowledge that such pragmatism is a last resort, given the power imbalance that exists between iwi and hapū and councils and consenting authorities.

Mātauranga Māori has also successfully been used to inform the development of monitoring and reporting frameworks which measure the overall health and mauri of the natural environment. These frameworks are a good example of mātauranga Māori and western science complementing each other and providing decision-makers with richer and more robust information about the state of the environment. Selected examples of mātauranga-Māori-led monitoring and reporting frameworks are

[4] Parsons, M., Fisher, K., & Crease, R. P. (n.d.). Decolonising Blue Spaces in the Anthropocene. P.201.

outlined in Appendix G.

3 Legislative framework for wastewater management

This section provides a high-level overview of the legislative and regulatory framework for wastewater management in New Zealand and highlights relevant mechanisms which support Māori participation in wastewater management processes.

3.1 Early wastewater management regulation and practice

In the years following European settlement in New Zealand, waste was typically treated on-site or disposed of in the city outskirts. Reticulated systems were developed in larger centres during the early 1900's and disposed untreated wastewater into streams, rivers or the coast. Dilution was considered adequate to mitigate any problems with pollution. These early approaches conflicted with tikanga and mātauranga Māori approaches to waste management which focused on careful removal and disposal of waste and used water.

As urban areas grew and the negative impacts of such practices became more evident, there was a shift towards the development of wastewater networks[5], with public health and environmental concerns in the 1950s prompting legislative action in the water management sector. The Water and Soil Conservation Act 1967 introduced a new system for regulating water use and discharges and required a permit for the discharge of wastewater into water. Furthermore, infrastructure development began to improve through the separation of stormwater and wastewater pipes, however there were some legacy issues of combined pipes which contribute towards network overflows today.

In the 1970s, government subsidies funded investment into wastewater network infrastructure, including outfalls into freshwater bodies. Māori firmly opposed these practices, leading to some of the earliest Waitangi Tribunal claims in the late 1970s and 1980s, which highlighted the adverse effects of wastewater discharge had on wāhi tapu and mahinga kai.[4]

The enactment of the Resource Management Act 1991 (RMA) marked a new approach to resource management by introducing more stringent environmental controls.[6] More recently, legislative developments have further emphasised the need for improved approaches to the sustainable management of water. The strengthening of Te Mana o Te Wai and the National Policy Statement for Freshwater Management 2020 (NPS-FM), and the establishment of Taumata Arowai as the Water Services Regulator, all reflect a shift towards more holistic and integrated approaches to water management. Note that the Government has made policy changes related to Te Mana o te Wai and the national direction for freshwater management through the Resource Management (Freshwater and Other Matters) Amendment Act 2024. Further detail on resource management and water services reforms is outlined in section 3.8, and an overview of the Resource Management (Freshwater and Other Matters) Amendment Act 2024 can be found in 0.

In summary, wastewater management regulation has changed over time – from enabling untreated wastewater to be disposed of as general practice to requiring more stringent controls that afford greater protection for human health, water quality and the environment. Regulatory practice has also progressed to involve greater levels of Māori participation in resource management processes with varying levels of success.

[5] Aurecon et al. (Draft - unreleased). He Pūkenga Wai, He Pūkenga Kōrero. P.19.

[6] Aurecon et al. (Draft - unreleased). He Pūkenga Wai, He Pūkenga Kōrero. P. 12.

3.2 Te Tiriti o Waitangi

The Treaty of Waitangi and Te Tiriti o Waitangi (Te Tiriti) are the constitutional arrangements between Māori (hapū) and the British Crown. It is foundational to the regulatory landscape in Aotearoa within which the wastewater system operates. Te Tiriti affirms the rights and interests of Māori in New Zealand. The courts have identified Treaty Principles which have been included in some legislation, including the Resource Management Act 1991 (RMA). The principles have been interpreted by the courts to include, among others, partnership, participation, and active protection and envisage meaningful involvement of Māori in decision-making that affects Māori.

Following Te Tiriti's signing, the Crown failed to uphold its obligations under this agreement leading to the loss of Māori land, natural resources, culture, language and social institutions. Breaches of Te Tiriti have led to iwi and the Crown engaging in Treaty settlement processes to recognise these grievances and provide appropriate redress. Redress mechanisms are contained in Treaty settlement legislation, some of which create bespoke arrangements for natural resource management. Treaty settlement legislation must be understood and upheld through the development of any policy or legislation by the Government, including Taumata Arowai.

The Waikato and Whanganui River Treaty settlements are examples of bespoke arrangements that provide innovative solutions to improve water quality and outline the Crown's responsibilities:

- **Te Ture Whaimana o Te Awa o Waikato:** The Waikato River settlement is provided for under multiple pieces of settlement legislation. The settlement's purpose is to restore the health and wellbeing of the Waikato River. Te Ture Whaimana is the vision and strategy for the Waikato River and is part of the Regional Policy Statement and prevails against inconsistent planning instruments. The settlement also provides for Joint Management Agreements (JMA's) to enable co-management between iwi and local Council over the river.
- **Te Awa Tupua (Whanganui River Claims) Settlement Act 2017:** This arrangement recognises the Whanganui River as a legal person. It also recognises Te Awa Tupua as '*an indivisible and living whole, comprising the Whanganui River catchment from mountains to sea, including all its metaphysical and physical elements*'. Te Awa Tupua and Tupua te Kawa (values of the river) must be recognised and provided by decision-makers specified by the Act, and Te Kopuka (strategy group) has been set up as a permanent joint committee under the Local Government Act 2002, to collaboratively advance the environmental, social, cultural and economic health and wellbeing of Te Awa Tupua.

The partnership between iwi Māori and the Crown under Te Tiriti has enduring implications for wastewater management, requiring that Māori interests in water as a taonga are recognised and safeguarded, and that Māori are actively involved in decision-making processes concerning wastewater and how it is managed.

3.3 Resource Management Act 1991

The purpose of the RMA is to *'promote the sustainable management of natural and physical resources'*. Sustainable management refers to managing the use, development, and protection of natural and physical resources in a way that enables communities to provide for their social, economic, and cultural wellbeing while:

- Sustaining the potential of natural and physical resources (excluding minerals) to meet the foreseeable needs of future generations;
- Safeguarding the life-supporting capacity of air, water, soil and ecosystems; and
- Avoiding, remedying or mitigating any adverse effects of activities on the environment.

Part 2 of the RMA is important for upholding Māori rights and interests. It requires that the Crown:

- Recognise and provide for the relationship of Māori and their culture and traditions with their lands, waters, sites, wāhi tapu and other taonga;

- Have particular regard to kaitiakitanga; and
- Take into account the principles of the Treaty of Waitangi.

Appendix C provides an overview of the key provisions of the RMA, and it also provides a link to further details on the proposed approach to changing the resource management system, which includes the repeal of the Resource Management Act (RMA) and its replacement with two new laws focused on urban development and environmental protection.[7]

3.3.1 Consenting processes

The RMA prohibits the discharge of contaminants into air, water and onto land unless expressly allowed for by a regional plan rule, resource consent or other regulation.[8] A resource consent is required for most wastewater discharges in New Zealand. The maximum duration of resource consents that can be sought for discharge of wastewater is 35 years.

A resource consent will stipulate conditions to ensure that the activity is carried out in a way that mitigates any potential adverse effects on the environment and complies with legal and regulatory standards. Resource consents for discharge of wastewater can include conditions tailored to ensure that the discharge of wastewater or biosolids is managed in a way that is sensitive to the local context and Māori cultural values. Councils must ensure that the conditions of the consent are adhered to, and that wastewater treatment and disposal systems do not exceed the environmental limits set by the consent.

Applications for resource consents are typically notified to allow the community, stakeholders, and affected parties to make submissions and to ensure relevant environmental effects and planning documents, including Iwi Management Plans (discussed in section 5.4), are considered by the consenting authority. Mana whenua are often engaged at the resource consenting stage, which can be adversarial, short-term and highly technical creating significant capacity issues for iwi and hapū.[9]

While there is no general duty to consult for any resource consent applicant or local authority, an Assessment of Effects is required and must identify persons that may be impacted by a resource consent and include a response to the views of anyone that has been consulted. Best practice in the consenting process involves early and meaningful engagement with mana whenua, key stakeholders, and the local community.[10] Resource consents that may impact on Māori interests should engage with mana whenua early, particularly in light of Part 2 of the RMA and to avoid future litigation.

Generally, there is no standardised process for mana whenua involvement in the resource consent process across Aotearoa; however, mechanisms such as Joint Management Agreements, Mana Whakahono ā Rohe agreements, and iwi planning documents (discussed in section 5) can assist with mana whenua involvement in the earlier stages of the consenting process (and broader planning processes) where such frameworks exist. Some councils provide funding to assist with participation in the earlier consenting stages. Funding is also available nationally for the appeal of resource consents through the Environment Court.

3.3.2 Best practicable option

The 'best practicable option' (BPO) is a principle provided for in Part 2 of the RMA. Under the RMA, the BPO for the discharge of a contaminant is defined as the most effective method for preventing or minimising adverse environmental effects, taking into account factors such as the nature of the discharge, the sensitivity of the receiving environment, financial implications, environmental impacts

[7] See RMA Reform Phase Three fact sheet.pdf

[8] Resource Management Act. 1991. section 15.

[9] Aurecon et al. (Draft - unreleased). He Pūkenga Wai, He Pūkenga Kōrero. P. 65.

[10] Aurecon et al. (Draft - unreleased). He Pūkenga Wai, He Pūkenga Kōrero. P. 47.

of available options, the current state of technical knowledge, and the feasibility of successful application.[11] BPO determinations are conducted on a case-by-case basis. [12]

Engaging with mana whenua in the process for determining the BPO for wastewater treatment arrangements is considered best practice. An example of this in practice is the Akaroa WWTP, where the transition to land-based wastewater treatment emerged as the BPO, after extensive involvement from Ōnuku Rūnaka as mana whenua, Ngāi Tahu and other stakeholders.[13] High-level governance arrangements have been established to facilitate mana whenua input, ensuring that the council's technical options are balanced with cultural preferences. This collaborative approach exemplifies how mana whenua can play a critical role in guiding wastewater management practices towards solutions that respect cultural values and promote environmental integrity.[14] Similarly, mana whenua were involved in identifying a recommended BPO in the Taipā case study. Further detail is provided in Appendix A.

3.4 National Policy Statement for Freshwater Management

The NPS-FM sets out the objectives and policies for freshwater management under the RMA and provides national direction that regional councils must apply in their regional policy statements and regional plans.

The 'Essential Freshwater' reform programme from 2020 introduced changes to protect and improve rivers, streams, lakes and wetlands. The aim of the reform was to stop further degradation of freshwater, immediately improve water quality, and reverse past damage to waterways and ecosystems. The amendments also strengthened provisions to involve mana whenua in freshwater management through Te Mana o te Wai and National Objectives Framework (NOF) provisions. The NPS-FM requires councils to also engage with communities implementing the NOF. Furthermore, monitoring under the NOF must include measures informed by mātauranga Māori and through involvement of mana whenua.

Resource consent applications for wastewater discharges must assess potential effects against the objectives and policies of the NPS-FM and demonstrate that the discharges will lead to water quality improvements over time.[15]

Appendix D sets out an overview of the key provisions of the NPS-FM.

3.4.1 Te Mana o te Wai

Te Mana o te Wai refers to the fundamental importance of water, and drawing on tikanga and mātauranga approaches to freshwater management. It recognises the mana and mauri of water, and the relationship between water and mana whenua. Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community. This concept is grounded in the understanding that the health of waterways is inextricably linked to the health of the land, ecosystems, and the people who rely on them.

Te Mana o te Wai prioritises the health and wellbeing of water bodies and freshwater ecosystems first, the health needs of people second, and the social, economic and cultural wellbeing of the community third, reflecting a tikanga Māori approach which respects and provides for the mana and mauri of the water itself.

Te Mana o te Wai also sets out six principles relating to the role of mana whenua and broader community in the management of freshwater which will inform the implementation of Te Mana o te Wai, including mana whakahaere (the power of tangata whenua to make decisions regarding

[11] Resource Management Act. 1991. part two.

[12] Aurecon et al. (Draft - unreleased). He Pūkenga Wai, He Pūkenga Kōrero. P.47.

[13] Aurecon et al. (Draft - unreleased). He Pūkenga Wai, He Pūkenga Kōrero. P.105.

[14] Ministry for the Environment. 2020. The New Zealand Wastewater Sector. P.132-134.

[15] Aurecon et al. (Draft - unreleased). He Pūkenga Wai, He Pūkenga Kōrero. P.29.

freshwater), kaitiakitanga and manaakitanga.

As discussed briefly in section 4.3, councils, through active involvement with mana whenua, and engagement and discussion with local communities, will determine how to apply Te Mana o te Wai locally.[16] Regional councils must include an objective in the regional policy statement that describes how the management of freshwater in the region will give effect to Te Mana o te Wai.[17] For example, Te Mana me te Mauri o te Wai is a local expression of Te Mana o Te Wai for Te Tai Tokerau, developed through engagement with communities and tangata whenua for their Freshwater Plan.[18]

The current Government has introduced interim changes to Te Mana o te Wai (set out in Appendix F) and have signalled an intention for further reform of the NPS-FM at a later stage.

3.5 Local Government Act 2002

The purpose of the Local Government Act (LGA) 2002 is to provide for democratic and effective local government that recognises the diversity of New Zealand communities.[19] The LGA recognises the Crown's responsibility to take the principles of the Treaty into account and specifically requires that local authorities provide opportunities for Māori to contribute to its decision-making processes.[20] To this end a local authority must:[21]

- Establish and maintain processes to provide opportunities for Māori to contribute to the decision-making processes of the local authority;
- Consider ways to foster the development of Māori capacity to contribute to the wider decision-making processes; and
- Provide relevant information to Māori.

Specific principles for consultation regarding local authority decisions are identified by the LGA, including specific mention of consultation with Māori[22]. The LGA specifically provides that if a local authority decision is significant and is in relation to land or a body of water, then the local authority must take into account the relationship of Māori and their culture and traditions with their ancestral land, water, sites and other taonga.

The LGA outlines the duties of councils and territorial authorities to provide and maintain essential infrastructure, including wastewater services. These duties encompass the collection, treatment, and disposal of wastewater, ensuring both public health and environmental protection. Monitoring and reporting are critical components of wastewater management under the LGA. Local authorities are required to assess the adequacy of wastewater and sanitary services, with annual reporting on key performance metrics such as resource consent compliance, wastewater overflows, and any incidents that may impact public health.

3.6 Taumata Arowai – The Water Services Regulator Act 2020

The Water Services Regulator Act 2020 establishes Taumata Arowai, the water services regulator. The Act outlines Taumata Arowai's objectives, including ensuring the safety of drinking water and public health, giving effect to Te Mana o te Wai, and providing oversight and advice on the regulation

[16] Ministry for the Environment. 2020. Wastewater Disposal and the NPS-FM. P.9.

[17] Ministry for the Environment. 2023. Guidance on the National Objectives Framework of the NPS-FM. P.15.

[18] https://www.nrc.govt.nz/environment/the-freshwater-plan-change/learn-more-about-the-freshwater-plan/te-mana-me-te-mauri-o-te-wai/

[19] Local Government Act. 2002. Section 3.

[20] Local Government Act. 2002. Section 14.

[21] Local Government Act. 2002. Section 81.

[22] Local Government Act. 2002. Section 82.

and environmental performance of wastewater networks.[23]

The Act also established a Māori Advisory Group to advise the board and officials of Taumata Arowai on Māori interests and mātauranga related to drinking water. The operating principles for Taumata Arowai, set out in the Act, provide that they must partner and engage early and meaningfully with Māori, including on giving effect to Te Mana o te Wai, and understanding and enabling the exercise of mātauranga Māori, tikanga Māori, and kaitiakitanga.[24]

Further changes related to water services and resource management reform are outlined in section 4.8 below.

3.7 New Zealand Coastal Policy Statement 2010

The New Zealand Coastal Policy Statement 2010 (NZCPS) is a critical instrument under the Resource Management Act (RMA) that directs the management of the coastal environment in New Zealand. The NZCPS addresses the discharge of stormwater and treated wastewater, including overflows of untreated wastewater, which are common in coastal areas.

Policy 23 of the NZCPS, 'Discharge of contaminants,' is particularly relevant in the context of wastewater management. This policy emphasises the importance of considering the sensitivity of the receiving environment and stipulates that treated human sewage should not be discharged unless alternative methods, sites, and routes have been adequately considered, and an understanding of tangata whenua values and the effects on them have been informed.

3.8 Water services reforms

In December 2023, the New Zealand Government announced a new direction for water services called 'Local Water Done Well', which includes a series of reforms to the existing water services and resource management landscape. During the development of this report, in August 2024, the Minister of Local Government announced that government is proposing to amend legislation – principally the Water Services Act 2021 and the Resource Management Act 1991 - so that *"there would be a single standard rather than a minimum (or maximum), which would be implemented in resource consents"*. The government's position on and rationale for these changes is set out in the Local Water Done Well Factsheet *'Standards to Help Reduce Water Infrastructure Costs'* (August 2024).

An overview of key elements of the reforms are outlined in the table below:

Element	Detail
Water Services Acts Repeal Act	Enacted in February 2024, this Act repealed the Water Services Entities Act 2022, the Water Services Legislation Act 2023, and the Water Services Economic Efficiency and Consumer Protection Act 2023 and restored continued council ownership and control of water services.[25] This Act also confirmed Taumata Arowai's treaty settlement obligations.
Local Government (Water Services Preliminary Arrangements) Act 2024	The Local Government (Water Services Preliminary Arrangements) Act 2024 was enacted on 2 September 2024. This Bill establishes the Local Water Done Well framework and the preliminary arrangements for the new water services system including interim provisions stating that the hierarchy of obligations for Te Mana o Te Wai under the NPS-FM do not apply to the setting of wastewater environmental performance standards.

[23] Water Services Regulator Act. 2020. Section 10.

[24] Aurecon et al. (Draft - unreleased). He Pūkenga Wai, He Pūkenga Kōrero. P.47.

[25] Department of Internal Affairs. 2024. Local Water Done Well, Factsheet: Local Government Water Services Bill overview. P.4.

Element	Detail
Local Government Water Services Bill	The third Bill proposes a new economic regime for local government water service providers and standardisation of wastewater environmental performance standards, and repeals requirements to give effect to Te Mana o te Wai. Further changes proposed in the Local Government Water Services Bill are detailed in Appendix E.
Resource Management Amendment Bill	Currently with a select committee for consideration (as of August 2024). This Bill introduces key changes relevant to the wastewater management system, including excluding Te Mana o te Wai hierarchy of obligations. Further changes proposed in this Bill are outlined in Appendix F.

The inclusion of Māori perspectives in wastewater management has been a complex and evolving challenge for Aotearoa. While legislation such as the RMA facilitates some inclusion of Māori perspectives and mātauranga, the degree to which these perspectives are integrated can vary greatly based on local circumstances.

In recent years there has been a growing recognition of the need to integrate Māori values and perspectives more fully into all aspects of environmental management. There is growing pressure, for example, to move towards land-based discharge and away from discharging to water to preserve the mauri of the water.[26] Key priorities for mana whenua and wastewater identified in the New Zealand wastewater sector report, released by the Ministry for the Environment in 2021, included:

- Separating wastewater treatment from places where people may live;
- A strong preference for discharge to land;
- Higher quality of treatment of all contaminants; and

Ceasing decentralised systems and reticulating to a centralised system.[27]

While the broader legislative landscape described above sets the broad context for mana whenua involvement in wastewater management, the mechanisms which facilitate that involvement are often agreed on a case-by-case basis between mana whenua groups, central government and / or local councils.

4 Mechanisms that facilitate mana whenua involvement in wastewater processes

This section provides a high-level overview of mechanisms that provide for Māori involvement in design, monitoring or reporting arrangements, and examples of how these mechanisms have been used in practice.

4.1 Te Tiriti o Waitangi Settlement legislation

There are a number of significant water-based treaty settlements in New Zealand. The Waikato River settlement and Te Awa Tupua settlements have already been outlined in Section 4.2. Further examples include:

- **Te Arawa Lakes:** The Te Arawa Lakes Settlement Act 2006 establishes the Rotorua Te Arawa Lakes Strategy Group, a co-governance arrangement that promotes the sustainable management of the Rotorua Lakes and their catchments.
- **Whangaehu River:** The Ngāti Rangi Claims Settlement Act recognises the Whangaehu River as a living and indivisible whole. Te Waiū-o-te-Ika was established as the legal framework for

[26] Aurecon et al. (Draft - unreleased). He Pūkenga Wai, He Pūkenga Kōrero. P.49.

[27] Ministry for the Environment. 2020. The New Zealand Wastewater Sector. P.111-112.

the river, identifying values to represent the essence of the river and its catchment. The settlement also establishes a joint committee of council consisting of local authority and iwi representatives. The purpose of the joint committee is to provide strategic leadership in relation to the catchment and to progress the integrated management plan.

- **Tarawera River:** The Ngāti Rangitihi Settlement Act 2022 establishes the Tarawera Awa Restoration Strategy Group as a permanent co-governance group. The purpose of this joint committee is to support, co-ordinate and promote the integrated restoration of the mauri of the catchment.

These examples further illustrate how Treaty settlements create unique arrangements that have legal effect under the LGA and influence RMA processes, alongside other statutes. Settlement frameworks directly reflect Māori values and perspectives to create new mechanisms for managing natural resources in partnership. While these arrangements still have their challenges, they help to protect Māori rights and interests and ensure Māori involvement in governance and decision-making.

4.2 Joint Management Agreements

The RMA enables the development of Joint Management Agreements (JMAs) between an iwi authority and a local authority to jointly manage natural or physical resources in the region or district.

4.2.1 Ngāti Tūwharetoa and Taupō District Council

This JMA was established in 2009 and was the first of its kind to grant an iwi authority (Tūwharetoa Māori Trust Board) an equal share of statutory resource management decision-making power. The agreement specifically pertains to the management of water resources within the Ngāti Tūwharetoa rohe in the Taupō District. The JMA established a decision-making panel for notified resource consents and private plan change applications relating to collectively owned Māori land. The panel comprises two commissioners appointed by each party and a fifth commissioner jointly appointed as chair. This structure reflects a partnership approach by ensuring that both the local government and Ngāti Tūwharetoa have significant input into the management of water resources in the rohe.

4.3 Mana Whakahono ā Rohe

Mana Whakahono ā Rohe arrangements, also known as Iwi Participation arrangements, offer a structured approach for councils and iwi to formalise how tangata whenua can be involved in decision-making processes under the RMA.[28] These arrangements support local authorities in fulfilling their statutory obligations to involve Māori in resource management. [29]

The content of these arrangements is comprehensive, covering various aspects of participation and consultation. They outline how iwi will engage in the plan-making processes, the methods for required consultation with iwi, and collaborative approaches to developing monitoring methodologies. [30] A Mana Whakahono ā Rohe may detail procedures for consulting or notifying iwi authorities on resource consent matters, including instances where an iwi authority may be considered an affected party requiring limited notification. It can also describe how multiple iwi authorities will coordinate their engagement with the council, delegate roles from an iwi authority to individuals or groups, and establish other arrangements related to RMA processes. There are currently five such arrangements in effect with a further three under negotiation or awaiting final agreement.[31] The Ministry for the Environment maintains oversight of these arrangements.

[28] Resource Management Act. 1991. Section 58.

[29] Simmonds, K., Austin, D., & Madison, M. 2019. Cultural Drivers toward Land Based Discharge. P.5.

[30] https://www.environmentguide.org.nz/rma/maori-and-the-rma/

[31] Mana Whakahono ā Rohe: Iwi participation arrangements | Ministry for the Environment

4.3.1 Ngāti Tūrangitukua Mana Whakahono ā Rohe

The Mana Whakahono ā Rohe between Ngāti Tūrangitukua and Taupō District Council, approved in 2022, is a relationship-based agreement that establishes a framework for enhanced partnership and collaboration between the parties. The scope goes beyond the provisions of the RMA and aims to improve the relationship between the Council and Ngāti Tūrangitukua. There is a focus on enabling Ngāti Tūrangitukua to participate actively in decision-making processes through the establishment of the Tūrangi Co-Governance Committee, which features equal representation from both parties. The Committee is tasked with overseeing the implementation of the agreement and ensuring perspectives are integrated into the management of local resources and policy development within their rohe.[32]

4.4 Iwi and Hapū Management Plans

Iwi and Hapū Management Plans (IHMP) and Iwi Management Plans (IMP) are planning documents prepared by an iwi, iwi authority, rūnanga, or hapū to articulate their policies and aspirations regarding the management of natural and physical resources within their rohe. They are provided for in the RMA as "planning documents recognised by an iwi authority" which local authorities are required to "take into account"[33] when developing or amending a regional plan or policy statement.

The scope of IHMPs is not limited to environmental resource management, encompassing a broad array of aspects which can include cultural heritage, social wellbeing, and economic development. IHMPs can take the form of formal documents similar to council policy statements or more informal expressions of iwi policies. The plans typically begin with establishing whakapapa connections and outline any values, focus issues, causes, objectives and methods.

4.4.1 Waikato-Tainui Environmental Plan

The Waikato-Tainui Environmental Plan - 'Tai Tumu, Tai Pari, Tai Ao', is an initiative born from the Whakatupuranga long-term 2050 development approach, aiming to enhance the capacity of marae, hapū, and iwi within the Waikato-Tainui rohe in environmental sustainability. The plan's primary goal is to guide the restoration of the region's environment to a state akin to that which existed during the time of Kiingi Taawhiao. The plan outlines objectives and policies for environmental management, provides for a collaborative approach, and provides for regular reviews and updates to ensure continued relevance and effectiveness.[34]

4.5 Cultural Impact Assessments

A Cultural Impact Assessment (CIA), sometimes referred to as Tangata Whenua Impact Assessment or Tangata Whenua Effects Assessment, is a report that documents the values, interests, and connections that Māori have with an area or resource and the potential impacts of a proposed activity on these aspects.[35] CIAs serve as a mechanism to enable meaningful and effective participation of Māori in the impact assessment process and are considered technical advice, similar to ecological or hydrological assessments.

While there is no statutory requirement for resource consent applicants or councils to prepare or commission a CIA, doing so can assist in meeting various statutory obligations under the RMA. These include preparing an Assessment of Environmental Effects (AEE)[36], responding to requests for further information, determining notification status, considering Part 2 matters in decision-making, and setting appropriate conditions for resource consent.

Cultural Values Reports (CVRs) are variations of CIAs used in assessing or providing background

[32] Mana Whakahono - Taupō District Council (taupodc.govt.nz)

[33] Resource Management Act. 1991. Section 61(2A)(a) and Section 66 (2A)(a).

[34] Environmental Plan – Waikato-Tainui (waikatotainui.com)

[35] https://www.qualityplanning.org.nz/node/991

[36] Resource Management Act. 1991. Section 88.

information when preparing plans. CVRs identify and describe values related to an area or resource but may not detail the effects of a specific activity. They can, however, address the broad-level impacts of development in the area and guide the management of that area or relevant issues.[37]

The case studies in Appendix A contain examples of CIAs in practice.

This section has outlined a range of different RMA based tools that are available to strengthen Māori participation in resource management processes, and involvement in decision-making. These tools range from iwi planning documents which articulate values, objectives, priorities and actions to joint-management arrangements of natural resources.

5 Case studies and key insights

This section provides a high-level overview of the content and structure of the case studies and summarises key insights surfaced through case study engagement.

5.1 Case studies

Six recently consented WWTPs were selected for case studies (Gisborne, Taipā, Rotoiti-Rotomā, Cambridge, Porirua, and Pukekohe). Each case study includes the following:

- A summary of background information relating to the relevant WWTP;
- Mana whenua perspectives on the impact of wastewater discharge in the relevant rohe;
- An overview of mana whenua involvement in resource consenting processes and treatment arrangements;
- Identification of solutions and uptake of new technologies; and
- Examples of ways that wastewater treatment has given expression to mana whenua values, tikanga and mātauranga Māori.

The case studies demonstrate how certain wastewater arrangements have, or have not, given effect to mana whenua values, perspectives and aspirations. They summarise a wide range of experiences which provide useful insights to learn from and can be used to inform the development of wastewater environmental performance standards and guidelines.

The six case studies can be found in Appendix A of this report.

5.2 Key insights from case studies

The insights outlined below are a summary of key insights gathered from case study engagement. They provide an overview of Māori values and perspectives in respect of wastewater management, provide guidance for effective engagement with mana whenua, and demonstrate the potential for collaborative approaches to achieve outcomes that align with Māori perspectives, community aspirations, and technical requirements for wastewater treatment.

The case study insights have informed the environmental performance standards reports outlined in section 2.

[37] https://www.qualityplanning.org.nz/node/991

5.2.1 Overarching case study insights

This table details insights drawn from across the case studies

Theme	Detail
At-place implementation and decision-making can support improved local outcomes	Engagement showed a strong preference for 'at-place' decision-making to ensure that mana whenua (within the catchment a WWTP operates) are involved in decisions affecting them. This approach upholds the mana of hapū and iwi as the appropriate groups to engage in the decision-making process, and their role as experts of their own mātauranga and tikanga (as no one else can provide this information). The current approach enables local authorities to set standards at a more stringent level if required to meet environmental, cultural or social objectives. There is an inherent tension between at place decision-making and national standard setting. We heard at-place decision-making is not always effective, often due to a lack of early and meaningful engagement with mana whenua and inadequate resourcing. Mana whenua also highlighted the power imbalance at decision-making tables which can lead to their voices not being heard. In this respect, a national approach to minimum standards setting should support high levels of wastewater treatment. We suggest that mana whenua are engaged when identifying the appropriate standard levels at place (whether at the minimum level or higher) and to ensure that local tikanga and mātauranga inform the implementation of the standards through WWTP design, management and operation, or resource consenting. Adopting a national minimum standard may provide some benefits to mana whenua by reducing engagement costs and providing further certainty. Better engagement will also serve to achieve outcomes that balance Māori values and modern wastewater treatment requirements.
Environmental protection is paramount	It is paramount that wastewater treatment processes are improved to ensure better environmental outcomes. Many mana whenua groups had the objective to restore or protect 'te mauri o te wai' and avoid any further environmental pollution or degradation. Case study examples highlighted that where wastewater treatment proposals identified stringent standards for wastewater treatment or used technology that addressed environmental issues (e.g., sludge minimisation, on-site treatment options), mana whenua were more likely to support the resource consent. Many noted that the highest standard of treatment was required at the point of discharge at all times (Cambridge WWTP), irrespective of whether this was discharged to water or land (Taipā WWTP).
Mana whenua seek active participation in all phases of wastewater management	It was emphasised that mana whenua seek active participation in all phases of the wastewater treatment process (from WWTP design and consenting through to monitoring and enforcement). The Cambridge case study highlights the benefits of this approach. In contrast, the Taipā and Rotoiti-Rotomā case studies both highlighted the negative implications of failing to proactively collaborate with mana whenua. Both of these cases involve mana whenua opposing water-based discharge approaches for extended periods of time, and each case involved mana whenua successfully appealing resource consent decisions through the Environment Court. The Taipā court decision included a requirement that the consent holder establish a working group with mana whenua, community, and council representatives alongside an independent expert. Often resource consents require the establishment of a specific wastewater advisory group, working group or committees to provide advice through the consenting or upgrade process (these were features of all case studies). The Rotoiti-Rotomā case study noted that additional groups were created to support the WWTP upgrade, which created duplication given similar groups already existed. Insights from case studies suggest mana whenua specific arrangements should:

Theme	Detail
	• have the right representation appointed by mana whenua through their own processes – whether hapū, marae or whānau representation is required will be context specific; • be clear on the mandate of any particular working group or committee; • be funded (potentially by consent applicants / holders as the ones seeking something from mana whenua); and • consider all wastewater arrangements at a catchment level (as this enables meaningful, holistic discussions regarding what should be prioritised given limited resources).
Proactive engagement with mana whenua is critical to achieve improved outcomes	Proactive engagement with mana whenua can reduce the risk of additional costs through litigation or protracted consenting processes. For example, during the Rotoiti-Rotomā engagement it was noted that mana whenua insights were sought by the Rotorua Lakes Council after they had already engaged costly international consultants who lacked local knowledge and mātauranga. Further time and costs were incurred to integrate mana whenua insights retrospectively.
Technical wastewater expert support for mana whenua should be resourced	Several mana whenua groups identified the importance of having the assistance of a 'technical wastewater expert'. This role supported mana whenua to feel more confident in the outcomes (as they were not reliant on council experts) and enabled the sharing of their insights in a more informed and impactful way. In the Taipā case study, an independent expert was able to explain and provide analysis on wastewater discharges to help educate mana whenua. They felt that this enabled them to engage with council on a more level and impactful basis. Further, mana whenua participants highlighted that, while the science provides the parameters, mātauranga Māori provides the rationale for why things need to change. This emphasises how western science and mātauranga can complement each other. The importance of those that are appointed to governance or advisory groups have the right skills in order to participate effectively was noted.
Mana whenua involvement in monitoring and reporting is a priority	Mana whenua aspire for the highest possible standard of treatment at the point of discharge, and monitoring approaches should reflect this through stringent limits and frequent monitoring. Several mana whenua representatives engaged did not consider it appropriate to have average limits (i.e., wastewater discharge averages out to an acceptable level). There are numerous examples of mātauranga Māori based monitoring and reporting frameworks that have been adopted by mana whenua to monitor cultural indicators and measures. The case studies outlined the following examples: • In Cambridge, a Mātauranga Matariki Framework underpins the monitoring of wastewater treatment. The Framework uses each star within the Matariki cluster to represent and group the various issues identified and solutions developed in respect of the new WWTP proposed. • Ngāti Toa Rangatira (alongside Victoria University and the Institute of Environmental Science and Research) developed a cultural monitoring programme within the Porirua catchment. The research methods employed include regular sampling of water, sediment, and shellfish across six sites to provide insight into the harbour's cultural health and the impacts of water-based discharge on the receiving environment. Ngāti Toa are also involved in monitoring and sampling which is an effective way of reconnecting mana whenua with the harbour and environment. While these monitoring and reporting frameworks relate to water health and wellbeing more broadly, there are important parallels that can be applied to the development of a monitoring and reporting framework for wastewater overflows. Key insights include:

Theme	Detail
	• Mātauranga Māori and western science can be brought together to identify indicators and measures that provide a richer and more robust understanding of environmental health; • It was noted the importance of strong involvement and guidance from mana whenua on the identification and adoption of cultural health indicators and measures within their rohe. Only mana whenua can provide expertise relating to their tikanga, mātauranga and values, which informs measures and indicators; • Iwi-led approaches are important and provide an opportunity for mana whenua to create authentic and innovative mātauranga-Māori based monitoring and reporting frameworks, and to exercise kaitiakitanga; and • Data is an important tool to help iwi drive positive change. The Waikato River Authority Report Card is another tool that summarises where the Waikato River Authority is with regards to meeting the aspirational objectives of Te Ture Whaimana – vision and strategy for the Waikato River. The report card is a useful communication tool that uses a simple format and synthesises complex information into clear key messages. The report card reports against key indicators and provides an overall grade for the health and wellbeing of the river. The cultural values of Waikato River iwi underpin the report card framework.[38] It was noted that increased investment is required to support monitoring In the Porirua case study, Wellington Water has installed network overflow monitors at different sites. These monitors provide updates to Ngāti Toa during network overflow events via phone alert. Engagement noted the overflow monitor at Rukutane Point had been broken and not replaced for some time due to funding constraints. Case study engagement often indicated that mana whenua, in line with the general public, lack access to information. Further engagement with mana whenua to identify preferences in terms of frequency of reporting and any specific reporting requirements mana whenua have (e.g. requesting additional information regarding areas used for mahinga kai or which are wāhi tapu). Such reporting requirements would be in addition to any public reporting.
Collaborative approaches with mana whenua can support improved approaches to wastewater management	The case studies highlighted several uses of new technologies that provide different benefits: • Electro-coagulation technology is proposed for the Taipā WWTP. The benefits of this technology include lower capital and operational costs, lower energy usage, minimal maintenance requirements (can be run remotely) and sludge minimisation. Ultimately this technology helped mana whenua to successfully co-design a solution that enabled discharge to land (by overcoming financial barriers) and which met their long-term aspirations to protect the mauri of their waterways. • Membrane Bioreactor (MBR) and ultraviolet (UV) light disinfection technology, which is modern, effective and designed to minimise negative environmental impacts is used at the Rotoiti-Rotomā WWTP and Cambridge WWTP. Mana whenua in these engagements were happy with the overall quality of treatment.

[38] https://waikatoriver.org.nz/wra-report-card/.

Theme	Detail
	• While generally comfortable with the quality of treatment, the Rotoiti-Rotomā WWTP case study identified mana whenua concerns with the high and unnecessary costs associated with 'gold-plated' technology options. These concerns arose particularly because there were alternative options that were cost-effective and achieved the same outcomes (e.g. individual septic tank assessments as opposed to a full reticulated system). Iwi also advocated for on-site treatment systems which were cost effective and sustainable; however, these were not adopted by Council. • In the Cambridge WWTP case study, a gabion wall will be constructed using local greywacke on the bank of the Waikato River to enable treated wastewater to flow across land before reaching the Waikato River. Land passage across the greywacke will 'mauri-fy' the discharge making this approach more acceptable to mana whenua.

5.2.2 Insights relevant to discharge to water

Theme	Detail
As a first principle, Māori do not support discharge to water (note this theme is also relevant to the discharge to land insights)	As identified earlier in this report, in principle, Māori do not support the discharge of wastewater into freshwater and prefer land discharge solutions. This position was confirmed through all case study engagement. Participants view this approach to be culturally inappropriate and inconsistent with local tikanga. Some participants view land-based discharge to be culturally inappropriate and inconsistent with local tikanga. Mana whenua all have strong aspirations to improve the health and wellbeing of their waterways, to stop further pollution and restore the mauri of their waterways. Mana whenua concerns regarding the discharge of wastewater to water is one of the main drivers behind the adoption of land-based discharge solutions for some WWTPs (GHD & Boffa Miskell, 2019). Land-based solutions can include land-based discharge as the final disposal method or including land passage as a final treatment stage before wastewater is discharged to water. Land passage can be used as a process to whakanoa wastewater, removing the tapu element of human waste, before it is integrated back into the environment. Mana whenua views and perspectives on appropriate approaches vary across the country. The Cambridge and Taipā case studies all involved land passage to naturally purify wastewater before it is discharged to waterways. The Gisborne case study indicated support for a constructed wetland to provide natural treatment. Furthermore, mana whenua noted that contact with land prior to discharge was essential to avoid any negative cultural or spiritual impacts to water. The Taipā and -Rotomā case studies were examples where land-based solutions were achieved. In both examples mana whenua used the court process to oppose the initial resource WWTP consent proposals as they did not meet standards for treatment or adequately protect the environment. In Taipā, strong engagement through a Working Group enabled hapū representatives to work with council and community members to identify a suitable solution that met the requirements for modern wastewater treatment and hapū values and objectives. In the Rotoiti-Rotomā case study, mana whenua shared a strong preference for land-based discharge over water-based discharge as it more closely aligns with their responsibility to protect and strengthen the mauri of the lakes. While wastewater discharged to land ultimately reaches the lake, mana whenua said that the buffering effect of the land is a far better alternative than direct discharge to water. In Rotoiti-Rotomā, Ngāti Pikiao were clear that they would not support discharge to water. Mana whenua provided land to enable land-based discharge. Both case studies used innovative technology solutions. Often, land-based discharge options are not practical given the costs associated with acquiring land for land-based treatment and disposal. The Rotoiti-Rotomā case study was a unique example where Haumingi 9B3B Trust provided the land that the WWTP is built on. The resource consent included multiple conditions that ensured that mana whenua were involved in all activity related to the scheme and at all stages. The Cambridge case study was an example where mana whenua reached a pragmatic solution with council to shift from a land-based discharge to a water-based discharge. This was achieved through collaboration and quality engagement.

Theme	Detail
Māori are pragmatic in findings solutions	During engagement we also heard examples of instances where land-based discharge solutions were not feasible due to financial or other constraints, and mana whenua worked with local authorities to find pragmatic solutions that respect their cultural values, tikanga and mātauranga. In the Cambridge case study, mana whenua ultimately agreed to a shift from land-based to water-based discharge. Quality engagement between Waipā District Council and mana whenua identified that high levels of wastewater treatment and water discharge options would achieve better outcomes than existing land-based treatment options. Engagement also identified a solution involving the use of local greywacke to enable the whakanoa (or 'mauri-fying' of treated wastewater, as it was described during engagement) process prior to discharge to water occurring. In the Porirua case study, land-based discharge was not feasible due to the unique topography of the Porirua area and financial constraints. Ngāti Toa have taken a pragmatic approach to ensuring higher levels of treatment are implemented, and to develop a cultural monitoring programme to report on cultural indicators within the Porirua Harbour catchment. Good data has enabled Ngāti Toa to influence broader strategic initiatives for improving the health and wellbeing of the Porirua harbour catchment. While pragmatic solutions are possible, there is also an imbalance in decision-making power between councils, and hapū and iwi that needs to be taken into consideration. Key elements for success identified through the Porirua and Cambridge examples include: • The need for good quality and authentic engagement to occur; and • A process to whakanoa was used in alignment with local tikanga and mātauranga (as advised by mana whenua cultural advisors).
The discharge of mortuary waste into the wastewater network is seen as abhorrent	The issue of discharging mortuary waste was raised in the Gisborne case study. The addition of mortuary waste into the domestic wastewater network is considered to be absolutely abhorrent to tangata whenua (as noted in the Final Commissioner's Decision). Gisborne District Council (GDC) in 2021 passed a Trade Waste Bylaw which identifies mortuary waste in the list of items that are prohibited from discharge into the wastewater network. Mortuary waste is considered to be the most tapu form of wastewater discharge. As such, we suggest-further work is done to understand this issue and identify any requirements that should be introduced to remove mortuary waste from domestic wastewater networks.

5.2.3 Insights relevant to discharge of effluent to land

Theme	Detail
Financial barriers can prevent use of land-based discharge	There can be financial barriers associated with land-based discharge (i.e. the acquisition of the land itself). In the Rotoiti-Rotomā case study, iwi provided the land that the WWTP was built on which strengthened their involvement in development of the WWTP and sewerage scheme. The greater the population being serviced by the relevant WWTP, the greater the issue (as more land is required to service more people). We heard during the Cambridge Case Study that this was one factor as to why water-based discharge was considered more appropriate.

Theme	Detail
High levels of treatment are also required for land-based discharge	A recurring theme from mana whenua engagement was that the highest standards of treatment of wastewater are expected. If standards are set too low, they will be inconsistent with mana whenua aspirations (and likely the aspirations of the wider community). This is the case for both water-based and land-based discharge. Mana whenua in the Taipā case study expressed that the standard of treatment needs to be just as stringent for discharge to land, as it is for discharge to water. The Rotoiti-Rotomā case study highlighted that land-based discharge also provides additional benefits such as a contained area for contamination, making it easier to manage any potential issues where knowledge or scientific evidence for a problem is unknown. However, mana whenua did say that there was some apprehension from council for land-based discharge approaches due to an earlier land-based disposal solution that had failed and resulted in the nitrate levels exceeding what was permitted by the resource consent. This suggests greater compliance is required regarding existing standards, or higher standards are required to avoid land and groundwater contamination.
New technology can provide cost effective solutions	Case study engagement highlighted the use of technology to support options for land-based wastewater discharge. Technological solutions can help address financial and environmental constraints that can impact the feasibility of land-based disposal. The Rotoiti-Rotomā case study highlighted technological innovations such as on-site pre-treatment systems to ensure higher levels of wastewater treatment. On-site treatment systems will be used to ensure that wastewater is treated to a high level before it travels through the reticulated system to the WWTP and ultimately is discharged to land. This reduces the risk of discharging raw sewerage to the lakes if there is any pipe damage and leakage. This approach also ensures that raw sewerage is not transferred across hapū boundaries which was a significant priority for mana whenua. On-site treatment is a requirement of the Cultural Management Plan and a condition in the resource consent. The Porirua case study also highlights mana whenua interest in developing technological solutions to address WWTP treatment capacity issues in the context of high levels of urban development. This includes investigating options for on-site treatment systems for new housing developments. The Taipā case study is another example of shifting away from discharge to water, to discharge to land. Mana whenua, with the support of an independent wastewater expert, advocated for electro-coagulation (EC) technology to support this shift. Some benefits of EC technology include lower capital and operational costs, lower energy usage, minimal maintenance requirements (can be run remotely) and sludge minimisation. Clarifier tanks will collect sludge and help to ensure that the wetlands are not overloaded with sludge. EC technology will enable discharge to land without run-off affecting the Parapara Stream (wastewater sits at the subsoil layer and only rainwater runs off the topsoil during wet weather). Both the Taipā and Rotoiti-Rotomā examples highlight how the use of wastewater treatment technology can reduce the risk of negative impacts to the environment.

Theme	Detail
Investing in quality partnerships with mana whenua is critical	In the Taipā and Rotoiti-Rotomā case studies, the environment court intervened due to initial issues faced between mana whenua and the council. Mana whenua strongly advocated for land-based discharge options. These interventions provided strong direction to guide relationships and require greater involvement from mana whenua: • In the Taipā case study, the Environment Court required that the Working Group identify a BPO. If the BPO was a land-based solution, then this must be implemented. Initially, the Council was hesitant towards the land-based option due to high financial costs, however, through robust engagement and co-design process, this option was ultimately agreed. • In the Rotoiti-Rotomā case study, effective engagement led to the development of resource consent conditions identified by mana whenua (including the appointment of an iwi technical advisor, establishment of an iwi wastewater liaison group, and adherence to a cultural management plan). Investing in good relationships with mana whenua and providing mechanisms for involvement could avoid litigation costs and project uncertainty.

5.2.4 Insights relevant to disposal of biosolids

Theme	Detail
Mana whenua support the beneficial re-use of biosolids, with some exceptions.	Mana whenua support the re-use of biosolids or treated wastewater for other purposes to promote a circular economy and reduce waste. Mana whenua support the development of improved solutions for the re-use of biosolids rather than disposal to landfill (for example, burning waste for energy or using biosolids as fertiliser). In the Gisborne WWTP case study, mana whenua clearly expressed that they do not support the transportation of biosolids to Paeroa, both because the biosolids are disposed of into landfills and because transportation shifts responsibility for disposal to another region. The Porirua WWTP engagement also highlighted interest from mana whenua in the development of future opportunities for re-use of biosolids or wastewater. In Rotoiti-Rotomā WWTP case study, mana whenua were also clear in engagement interviews that there should be no transfer of waste or biosolids to another area. One of the key reasons mana whenua preferred on-site treatment systems was because it avoided the transfer of waste or biosolids. In the Taipā WWTP case study, mana whenua supported circular economy approaches to the re-use of biosolids. They identified opportunities for selling biosolids to nearby farmers to generate revenue. Beneficial re-use of biosolids or wastewater should not be used directly in relation to food production. Further engagement with Māori will be required to ensure there is alignment with cultural values and tikanga

5.2.5 Insights relevant to wastewater network overflows

Theme	Detail
Robust long-term planning and investment in water	Long-term, integrated strategic planning and infrastructure investment is required to address network issues, accommodate future urban development, projected population growth, and an increase climate change and extreme weather events.

Theme	Detail
infrastructure is required to reduce the impact of overflows	While current efforts to reduce overflows are seen as a positive step in the right direction, mana whenua aspire to see the total elimination of overflow incidents. Examples of good long-term planning include: • In the Porirua WWTP case study, the council is considering on-site treatment options for new housing developments to reduce additional stress being placed on the existing network. Porirua City Council has invested in a holding tank to address the overflow issues during heavy rain events, which provides some benefits to reduce pressure on the coastal outfall but will not solve wider issues within the catchment. An integrated approach is required. • In the Rotoiti-Rotomā WWTP case study, the WWTP upgrade was specifically designed to accommodate additional housing developments and future population increases. • In the Cambridge WWTP case study, the pipes were designed to be much larger than usual to accommodate for future increased wastewater volume associated with future growth, and to minimise overflows. Examples that demonstrate the need for improved planning and investment: • The Porirua WWTP case study highlighted issues with stormwater and wastewater pipe cross-connections which contribute further to network overflow issues. Untreated wastewater enters the stormwater pipes during heavy rain events and is discharged into the harbour (there are 54 points of overflow discharge within the Porirua Harbour). These cross-connections are a result of both historic and current pipe installation practices. Industry education and greater compliance with best practice needs to be observed when installing new infrastructure. • Climate change and extreme weather events can also exacerbate existing infrastructure network issues. The Gisborne WWTP case study indicated that Cyclone Gabrielle impacted the network, although the full extent is unknown. Interim measures identified that could reduce the risk of overflows: • The Rotoiti-Rotomā WWTP case study noted a preference for using pre-treatment arrangements to ensure that what goes through the wastewater pipes has high levels of treatment. This approach helps reduce the impact that overflows or network failures can have. • In the Rotoiti-Rotomā case study engagement, mana whenua identified that separating different types of wastewater could be used to help alleviate pressure which contributes towards overflows. For example, by separating black water (toilet / human waste) and grey water (sinks / showers) it could be possible to create controlled overflow systems for grey water which is less impactful from tikanga Māori and health perspectives, alleviating pressure on the wastewater system to treat the more detrimental black water. The Working Group could also identify which sites would be more appropriate for the discharge of grey versus black water, ensuring that black water systems are far removed from wāhi tapu and mahinga kai to minimise the risk of harm caused by overflow.

Theme	Detail
Discharge of untreated or partially treated wastewater	Wet and dry weather network overflows can lead to raw sewerage being discharged into freshwater or coastal environments. Overflows cause increased pollution and degradation of the receiving environments, pose significant risks to human health and impact cultural values. In Porirua, network overflows were the most critical issue to mana whenua. The Porirua WWTP frequently experienced overflow events which meant that untreated wastewater bypassed secondary treatment processes before being discharged to sea. Overflow issues are caused by a low network capacity, population growth putting pressure on capacity, high wastewater inflow and infiltration, climate change, an aging network and poor asset condition. In Taipā, overflows are not common and are typically only experienced during high rainfall events. The WWTP upgrade's discharge to land proposal allows for any overflows or seepage to flow into the current wetland systems, which avoids putting pressure on the WWTP's treatment capacity. The Rotoiti-Rotomā WWTP case study highlighted the benefits of on-site pre-treatment for all wastewater entering the network. If there is a network overflow, the impacts are reduced due to this initial pre-treatment. The Tairāwhiti Resource Management Plan requires that Gisborne District Council obtains a resource consent for overflows. A resource consent permitting the discharge of untreated wastewater from dry and wet weather overflows was granted in 2021 for a period of 15 years. The resource consent includes a number of conditions relating specifically to tangata whenua. This includes the establishment of a Tangata Whenua Reference Group to provide cultural expertise and advise on the management of overflows, and a cultural monitoring plan to illustrate the effects on cultural indicators. Wastewater overflows are unacceptable to tangata whenua and work is underway to reduce overflow frequency, volume and effect. The effects of overflows include discomfort relating to the discharge of human and mortuary waste to water, impacts on mahinga kai (food harvesting), inability to undertake customary practices and other uses of the rivers and ocean, inability to use the beach after heavy rainfall, human health risks and degradation of mauri.

Appendices

Appendix A: Case Studies

Case Study: Cambridge Wastewater Treatment Plant

1. Introduction

The Cambridge Wastewater Treatment Plant (WWTP) case study details the experiences of Ngaati Hauaa, Ngaati Korokii Kahukura, and Waikato-Tainui (mana whenua) and how wastewater treatment arrangements can give effect to the aspirations of mana whenua. This case study provides a high-level overview of key facts relating to the WWTP, as well as a brief history of mana whenua perspectives and engagement regarding the wastewater treatment processes.

Outlined in this case study are:

- The experiences of Ngaati Hauaa, Ngaati Korokii Kahukura, and Waikato-Tainui through the consenting process for the WWTP and the exploration of their values, tikanga, and maatauranga;
- The approach and co-design of the new plant which is currently under development;
- Engagements between mana whenua and the Waipā District Council (WDC) on the design process for the WWTP resulting in advanced wastewater treatment solutions; and
- Processes supported through Te Ture Whaimana compliance (an advisory Kaitiaki Group) and mana whenua advocacy for the adoption of innovative technologies aligned with mana whenua aspirations.

The insights in this case study were informed by an engagement hui with mana whenua and Maximize Consultancy who provided support to mana whenua throughout the WWTP upgrade process.

2. Overview of the Cambridge Wastewater Treatment

The Cambridge WWTP is located to the west of Cambridge township and alongside the Waikato River (Figure 1), within the rohe (territory) of Ngaati Hauaa, Ngaati Korokii Kahukura, and Waikato-Tainui (mana whenua). The Waikato Regional Council (WRC) is the consenting authority. The current WWTP is located on land owned by the WDC and is subject to the Operative Waipā District Plan. In 2022 the population serviced by the WWTP was approximately 20,000 (with this anticipated to rise to roughly 50,000 in 2061).[39]

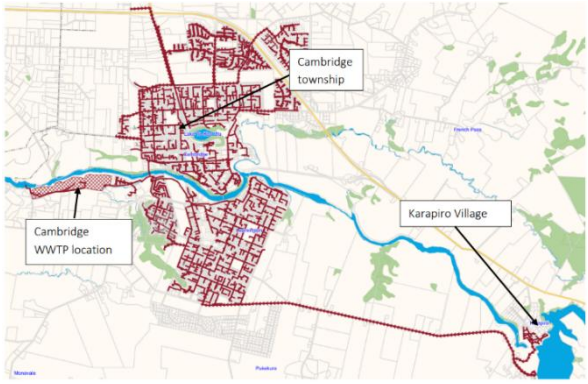


Figure 1 - Catchment of Cambridge WWTP

The existing plant has been operating since the 1970s,[40] servicing the Cambridge and Leamington municipal areas and parts of the Karāpiro and Hautapu industrial areas. The WWTP treats wastewater

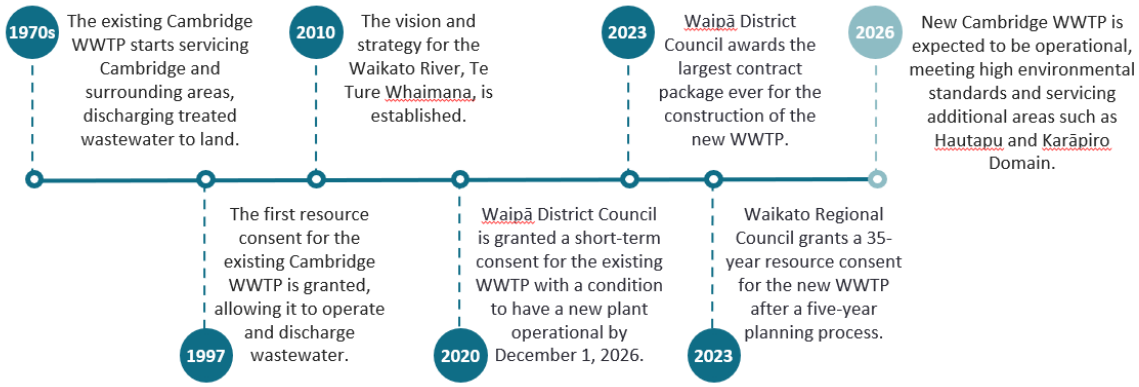
[39] Maximize Consultancy. 2022. Cambridge Wastewater Treatment plant Tāngata Whenua Effects Assessment Report. P.3.

[40] Cambridge wastewater treatment plant - Waipā District Council (waipadc.govt.nz)

and discharges it to land, with the groundwater eventually travelling to the Waikato River. The current WWTP utilises a rapid infiltration bed (RIB) system including wetland ponds.

Figure 2 - Rapid Infiltration Beds in the forefront.

Overview of Cambridge WWTP history



The new plant, agreed between mana whenua and the WDC, shifts toward water-based discharge with a higher standard of treatment. This is viewed as a practical alternative which achieves balance between traditional values and modern sewage treatment requirements. One of the key reasons mana whenua agreed to discharge to water for the new plant is that the discharge standard is set to a higher level than required.

Figure 3 - Rock Waterfall looking from the river (P Davies -personal collection 2024)

WDC has committed to contracts for the delivery of the new WWTP which will treat wastewater using Membrane Bioreactor (MBR) technology.[41] The preferred discharge option for the new WWTP is a rock waterfall situated on the bank of the Waikato River. Treated wastewater will flow down the waterfall before entering the river. Rocks for the waterfall were sourced from within the rohe.

3. Mana whenua perspectives on the impact of wastewater discharge in their rohe

Mana whenua expressed deep concern over wastewater treatment activities that negatively impact the awa. The Waikato River holds significant cultural importance for mana whenua as being vital to

[41] Council awards largest contract package, ever - Waipā District Council (waipadc.govt.nz)

their physical and spiritual well-being. Mana whenua stated that their goal is for people to be able to swim in the river, which is not currently recommended.[42]

Mana whenua were unequivocal that discharging human waste into water is fundamentally inappropriate, particularly the Waikato River given the cultural importance of the river as an embodiment of a living ancestor or te awa tupuna. They also noted, however, that in their experience, it is important to make informed and pragmatic decisions when engaging on wastewater treatment options. This means considering all options available, including discharge to water, where it may be a more viable treatment option or lead to efficient and effective outcomes.

Mana whenua were concerned that resource consenting decisions and the related resource consent conditions, which can be granted for decades, have given a licence to pollute the river because of compliance with outdated or low standard conditions. They also noted that with the environment in a deficit, doing the minimum and simply managing the effects is not sustainable and will not lead to the change they are seeking. There needs to be a koha (gift) back to the taiao (environment) in some way. Mana whenua suggested the most logical time for this koha would be at the point of discharge and that applicants should provide the resourcing to achieve this, since they are the ones seeking permission. Without proper resourcing from the applicants, there are concerns the burden will fall to mana whenua who are already under resourced.

The existing WWTP is located across the river from the Arikirua Paa, an ancestral paa and waahi tapu previously inhabited by Ngaati Hauaa and Ngaati Korokii Kahukura. The site is surrounded by an ancient paa which was destroyed by quarry activities and used as a 'fort' or 'redoubt' by the settler government after being abandoned by tuupuna. During the engagement, mana whenua noted that during past site visits at the WWTP, some mana whenua attendees physically hid their faces from the paa. They did this in deference to their tuupuna, who they believed were watching them with shame, due to the plant and its impact on the paa site.

While wastewater treatment can carry negative cultural implications, engagement identified potential positive opportunities also. Mana whenua stated that the new WWTP is being designed with a range of Maaori symbolism and that pou (either koowhatu/rock, stainless steel or traditional posts) will eventually be placed there. The deliberate use of a Matariki Maatauranga Framework has enabled mana whenua and WDC staff to openly express the importance of the site as an exemplar for:

- the treatment plant with the highest standard of water quality discharge,
- an integration of mana whenua values that can be monitored and measured, and
- a Tiriti relationship based on shared aspirations and genuine engagement.

While WWTPs have the potential to drive communities away, through negative impacts on the environment, it is thought the new WWTP can also act as a model for new approaches and solutions.

It is important to acknowledge the additional challenges faced with interconnected networks such as the Waikato River beyond just the wastewater treatment plants and discharges. There are a range of other discharge sources along the river, such as farm run-off, that are not subject to monitoring or compliance oversight. Broader community involvement with all those that live and undertake activities along the river will be critical to create action that protects the environment, and the wellbeing of the river, for future generations.

[42] Taumata Arowai, Wastewater Standards – Cambridge engagement notes, p. 4.

4. History of mana whenua involvement with wastewater treatment in Cambridge

4.1 Te Ture Whaimana

A unique aspect of the WWTP operation is that there are additional legal requirements as a result of settlement legislation, including compliance with Te Ture Whaimana o te Awa o Waikato (Te Ture Whaimana) which emerged from the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010.[43]

Te Ture Whaimana sets the vision and strategy for the Waikato River and is discussed further below. More information regarding how settlement legislation impacts the Waikato River can be found in the Waikato Regional Policy Statement.[44]

4.2 Kaitiaki Group

Mana whenua have been involved in the WWTP consenting process for over ten years. More recently, a Kaitiaki Group was established to help advise the Cambridge WWTP upgrade project. The Kaitiaki Group involves mana whenua as members whilst council staff and advisors can attend.[45]

During the last three years the group has had over thirty hui (meetings). Some of the topics discussed included:

- Upgrade options and discussion on the preferred approach;
- Discharge options including views on alternative discharges including to water;
- Current site issues and mitigations being sought;
- Consent conditions that should be included moving forward; and
- The Taangata Whenua Effects Assessment Report (TWEAR, discussed further below).

A terms of reference was prepared by the Kaitiaki Group and the WDC to help guide their relationship. Investing in high-quality and meaningful relationships were articulated by mana whenua as the best way to reduce potential litigation or challenges, while also supporting improved outcomes for the taiao, mana whenua, and the wider community. This does require an investment of resourcing, with the Kaitiaki Group being an example of a mechanism resourced by WDC; however this should be seen as a positive investment, which will be far more effective in the longer term over funding lawyers and court processes.

While mana whenua are open to having pragmatic conversations regarding wastewater treatment options, it was noted that such conversations can only be held if WDC are prepared to invest in the relationship with mana whenua as partners. Mana whenua acknowledge and are grateful to the WDC for the proactive and respectful engagement which has been established on a mutual goal; to build a facility that will serve the community for many years.

[43] Legislation NZ. 2010. Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act. s.12.

[44] Waikato Regional Council. 2022. Regional Policy Statement. p. 8.

[45] Maximize Consultancy. 2022. Cambridge Wastewater Treatment plant Tāngata Whenua Effects Assessment Report. P.2.

4.3 Taangata Whenua Effects Assessment Report (TWEAR)

Mana whenua commissioned the TWEAR in October 2022 to evaluate the potential and actual effects of the proposed upgrades to the Cambridge WWTP. As part of this, the TWEAR assessed the proposed WWTP against the various objectives for the Waikato River and identified several strategies for implementation to support the achievement of those objectives.[46] The TWEAR also identified and proposed a Maatauranga Matariki Framework (Framework) for implementation (discussed further below).

Mana whenua noted they intentionally avoided referring to their advice as cultural, which is otherwise seen in 'Cultural Impact Assessments' and similar documents as such terms increase the risk that third parties will disregard the document or try to limit its influence as they think cultural elements are irrelevant, or that mana whenua comments beyond cultural matters are outside of scope of mana whenua interests. The use of the word 'effects' was similarly noted as a key term in the title as it highlights the TWEAR having key implications which should be considered.

4.4 Maatauranga Matariki Framework (Framework)

Through the development of the new WWTP, mana whenua raised several concerns and proposed a range of maatauranga and mitigation measures. These issues and mitigations were then grouped under the nine stars of Matariki and a Framework was developed. This was further refined based on the assessment of the WWTP against:

- the Waikato-Tainui Environmental Management Plan (Tai Tumu, Tai Pari, Tai Ao);[47]
- the Ngāti Hauā Environmental Management Plan (Te Rautaki Tāmata Ao Turoa o Hauā); [48]and
- Te Ture Whaimana.[49]

The Framework aims to measure the management of effects of the proposed Cambridge WWTP on the whenua and the Waikato River. The Framework uses each star within the Matariki cluster to represent and group the various issues identified and solutions developed with respect to the proposed WWTP.[50]

The selection of Te Kaahui Whetuu o Matariki (the Matariki cluster of stars) is significant as it is linked to the wellbeing of people and marks the beginning of the Maaori new year, a time of rest and renewal. The growing knowledge and awareness of Te Kaahui Whetuu o Matariki, also helps the framework to be accessible and understood by a larger number of communities.

Through the implementation of the Framework, mana whenua visited the current WWTP to conduct a karakia (incantation). The karakia was aimed at acknowledging the whenua and the spiritual realm and acknowledging the impacts of the wastewater treatment activities that occur at the site. It was an opportunity for mana whenua to exercise their kaitiaki role and apologise to the Awa Tuupuna (ancestral river) for the wastewater treatment plant's effects. For mana whenua, the importance of

[46] Maximize Consultancy. 2022. Cambridge Wastewater Treatment plant Tāngata Whenua Effects Assessment Report. p.19.

[47] Waikato-Tainui Environmental Management Plan (Tai Tumu, Tai Pari, Tai Ao

[48] Ngāti Hauā Environmental Management Plan (Te Rautaki Tāmata Ao Turoa o Hauā

[49] Te Ture Whaimana

[50] Maximize Consultancy. 2022. Cambridge Wastewater Treatment plant Tāngata Whenua Effects Assessment Report. P.8.

karakia in the healing process is integral, and future karakia will likely be conducted for similar purposes.

4.5 Other aspects of mana whenua involvement

Mana whenua conducted an initial cultural induction for all staff at the WWTP which received positive feedback. Prioritising this induction was an important reflection for mana whenua of implementing practices that lift the capability of staff and support their ability to understand mana whenua perspectives and aspirations. Cultural inductions are ongoing as new staff come on to the site.

Through the development of the WWTP, mana whenua were heavily involved. While this was positive and contributed to the relationship between mana whenua and WDC and ensuring compliance with Te Ture Whaimana, it was exhausting for mana whenua who are heavily under-resourced, and many voluntary hours were provided.

More generally, it was noted during engagement, that parties often default to engaging with iwi authorities. However, iwi authorities are not necessarily representative of mana whenua (as iwi authorities often represent a larger group who may all have different takiwaa (territories) and whakapapa (genealogy). This highlights the importance of involving hapuu directly where they have an interest in the relevant subject matter.

5. Mana whenua involvement in resource consenting processes and treatment arrangements

The existing WWTP has operated under several resource consents, with the first consent granted in 1997. The existing WWTP continually breached its discharge consent conditions leading to the WRC issuing an abatement notice in 2019.[51] The abatement notice was considered to be the catalyst for action to develop the new WWTP. The WDC was granted a short-term resource consent in December 2020 to allow the WWTP to continue operating, with one of the conditions of this resource consent being that the development of a new WWTP operational by 1 December 2026.

The WDC worked closely with mana whenua and the wider community in relation to the new WWTP. As noted earlier in respect of the Maatauranga Matariki Framework, this involved mana whenua identifying maatauranga and mitigation measures. Following which, mana whenua worked with the WDC to identify preferred consent conditions to be put forward in the application.

The new WWTP will move away from the pond-based system currently in place, which requires a very large area to operate and will consist of buildings, tanks, and large concrete structures. It will occupy one-third of the size of the existing plant, and the surplus land will be remediated in future for other use. The new WWTP will also have a new on-site solar farm, generating enough energy to power the plant during the day.

The resource consent for the new WWTP was submitted in December 2022 with the support of mana whenua, a community advisory group, and the Hamilton City Council after five-years of planning. While two submitters opposed the resource consent, their concerns were addressed before the consent was granted. The consent was granted without a formal hearing in September 2023, with this seen as an indication of how closely the WDC worked with mana whenua and the community. The new plant has been consented for a period of 35 years.[52]

One of the resource consent conditions secured inflation-adjusted funding for the Kaitiaki Group for the duration of the resource consent, going towards mutually agreed restoration and capacity

[51] Waste: what's in the pipeline | Cambridge News

[52] 35-year consent for new Cambridge wastewater plant - Waipa District Council (waipadc.govt.nz)

building projects.[53] These initiatives will support the restoration of the site, achieving compliance with Te Ture Whaimana, and increasing the capacity and capability of mana whenua.

6. Identification of solutions and uptake of new technologies

Mana whenua aspire for drinkable water at the point of discharge but understand this is not feasible with the current technology available. While land-based discharge options were explored, this would have required the use of Rapid Infiltration Beds (RIBs) which was considered inappropriate due to geotechnical and construction risks.

Land-based discharge required the use of wetlands, which mana whenua noted would be at risk of pollution from the likes of puukeko who are drawn to wetlands and excrete into the water. While mana whenua considered the use of wetlands, including partnering with the National Institute of Water and Atmospheric Research (NIWA) to research such use, they did not think this approach could provide the scale of treatment that water-based discharge options would enable.

A range of possible technological solutions were considered in respect of wastewater discharge including UV treatment and other filtration methods. Ultimately, the new WWTP will utilise MBR technology to treat wastewater. Treated wastewater will then undergo a land-based treatment travelling through the waterfall situated on the bank of the Waikato River.

The waterfall was constructed utilising greywacke sourced from a local quarry. This was considered an appropriate solution by mana whenua as they view the discharge process as having a 'mauri-fying' effect on the discharged wastewater involving a transfer of mauri from the local greywacke to the treated wastewater, adding a level of maatauranga informed treatment.

During the engagement, it was noted by mana whenua that wastewater discharges averaging out to an acceptable level is not tolerable and the highest possible standard achievable should be a minimum standard required at the point of discharge.

7. Ways that wastewater treatment has given expression to mana whenua values, tikanga and maatauranga

Throughout this case study, several approaches have been noted that have supported mana whenua and the safeguarding of their values, tikanga and maatauranga. For instance, those discussed in section 3:

- **Te Ture Whaimana:** Developed with mana whenua input, the vision and strategy are part of the Waikato Regional Policy Statement and takes precedence in some planning instruments
- **Mahere Taiao:** assessment of the WWTP against relevant mana whenua environmental management plans
- **Kaitiaki Group:** An advisory group including mana whenua on the WWTP upgrade that had over thirty meetings discussing upgrade and discharge options, site issues, and consent
- **TWEAR Assessment Report:** Commissioned by mana whenua to assess the potential and actual effects of the WWTP and proposed the Maatauranga Matariki Framework
- **Maatauranga Matariki Framework:** Used to measure effects of the WWTP on the whenua and the Waikato River. The Framework uses each star within the Matariki cluster to represent the various issues and solutions identified for the WWTP.

[53] Maximize Consultancy. 2022. Cambridge Wastewater Treatment plant Tāngata Whenua Effects Assessment Report. p. 32.

The approaches at the WWTP aim to balance technical requirements with traditional values and local tikanga. The tikanga of contact with land is satisfied through a waterfall, prior to discharge to the river, constructed from the greywacke as previously discussed. The completion of the waterfall was accompanied by mihimihi (acknowledgements), karakia (incantations), and kai (food).[54]

Mana whenua emphasised that wastewater treatment practices and standards should evolve with environmental practices. Such an approach would be agile and adaptive, changing alongside the environment, and would support the ongoing expression of mana whenua values, tikanga and maatauranga.

The Maatauranga Matariki Framework promotes karakia as a means of supporting the treatment of the wastewater process. Karakia was used to acknowledge, resolve or address the contamination of the whenua, the treatment and discharge of wastewater into the river, in alignment with the cultural connection that mana whenua have to the site. Karakia can cleanse a person, object or area from spiritual harm, and like the rationale for the waterfall can influence the mauri of the water.

8. Summary of key insights

8.1 Successful elements

- Early and genuine investment in relationships with mana whenua can result in pragmatic approaches to wastewater treatment which achieve a balance between traditional values and modern sewage treatment requirements.
- This enables parties in the relationship to go hard on the issues while being soft on the relationship (i.e., pragmatically retaining the integrity of the relationship)
- Utilising frameworks based on tikanga and maatauranga supported a common understanding of key issues, mitigations and monitoring tools, and helped generate a sense of pride for those involved in the project.
- Karakia were intentionally used to support the healing process for the damage caused by previous wastewater treatment activities.
- Te Ture Whaimana was the pou that provided a legislative backstop which supported early engagement with mana whenua and held the Council to commit to the highest possible water quality discharge.
- Having a third-party act as a facilitator enabled mana whenua to focus on the subject matter. By keeping things moving forward, the facilitator supported direct conversations between parties (e.g. where necessary, mana whenua can focus on holding their ground rather than trying to keep applicants at the table). Facilitators can also help find solutions that would've been difficult to identify in their absence.
- The new Cambridge WWTP will be comparable to the best WWTPs in the country.

Cambridge's new WWTP has yet to open, but it's already winning awards. The Kaitiaki Group, established by the WDC, won the Special Award in recognition of its commitment to collaborate, embracing indigenous knowledge and honouring the principles of kaitiakitanga (guardianship) and Te Tiriti o Waitangi.

8.2 Opportunities to improve

- Mana whenua should be recognised as technical experts.

[54] Taumata Arowai, Wastewater Standards – Cambridge engagement notes, p. 5.

8.3 Key themes

- Investing in relationships is key to achieving what is best for the taiao, mana whenua, and the wider community (and the resources required for this should be viewed as an investment, rather than a cost).
- Mana whenua are pragmatic and will find solutions if the relationships are strong and engagement is meaningful.
- Mana whenua need to be recognised as experts in their own right and benefit from having technical experts that they trust and respect to inform their insights and perspectives.
- Mana whenua unashamedly utilise their innate spiritual / taha wairua to pave the way for an understanding and respectful engagement environment.
- Strong involvement from mana whenua across the whole lifecycle process of the WWTP upgrade is beneficial for the entire community.
- Mana whenua demand a high standard of treatment for discharge to water.
- While discharge to land is considered more acceptable from a cultural perspective, mana whenua are open to alternative approaches (however strong relationships are required to support this).

In summary, this case study demonstrates how early involvement of mana whenua and investing in genuine relationships can progress the identification of agreed solutions with tikanga and maatauranga informed values. This is enabled by the processes and mechanisms that support mana whenua involvement and implementation of perspectives, such as Te Ture Whaimana compliance, the Kaitiaki Group, and the Maatauranga Matariki Framework.

Case Study: Gisborne Wastewater Treatment Plant

1. Introduction

The Gisborne Wastewater Treatment Plant (WWTP) case study details the experiences of Ngāi Tāmanuhiri, Ngāti Oneone and Ngati Porou (mana whenua) and how wastewater treatment arrangements can give effect to their aspirations. This case study provides a high-level overview of the background and operation of the WWTP, as well as a brief history of mana whenua perspectives and engagement regarding the wastewater treatment processes, and how the practices of the WWTP reflect the local expression of mana whenua values, tikanga, and mātauranga.

Outlined in this case study are:

- The experiences of mana whenua through consenting process for the Gisborne WWTP;
- An overview of the steps taken between mana whenua with the Gisborne District Council (GDC) to develop wastewater solutions that are culturally sensitive and environmentally sustainable; and
- Exploring some of the key success factors and challenges faced by mana whenua about integrating mātauranga Māori with wastewater treatment.

The insights in this case example are informed by engagement with Ngāi Tāmanuhiri, and Ngati Porou representatives. Te Aitanga a Māhaki representatives were invited but decided not to attend. Ngāti Oneone was involved in a subsequent engagement. Te Aitanga a Māhaki has been provided an opportunity to comment on this case study and provide input.

2. Background of the Gisborne WWTP

The Gisborne WWTP is located in Awapuni in Gisborne in the takiwā (territory) of Tūranganui a Kiwa. The ocean outfall pipe was commissioned in 1964 by the then Gisborne City Council, the plant included a comminutor system, outfall pump station and ocean outfall discharging domestic and industrial wastewater. The station was the first of its kind, was considered innovative, and was the only wastewater disposal system infrastructure in Gisborne from 1964 through to 1990, when a milli screening plant was constructed on Stanley Road.

In 1999, a four-year extension for the use of the Ocean Outfall Pipeline was granted. This began a period where the use of the Ocean outfall was contested and options for the pathway and treatment of wastewater in Tairāwhiti was debated. In 2007, the Gisborne District Council (GDC) was granted a 35-year resource consent for the continue used of the ocean outfall pipeline, which included the construction of a WWTP. Conditions included the addition of boulder beds and the milli screens were decommissioned.[55] A 35-year resource consent was granted that included conditions sensitive to mana whenua concerns.

After several investigations including looking into the Hastings District Council small-scale pilot biological trickling filter system (BTF) trial and public engagements, it was decided that the new WWTP would utilise the BTF system. The Gisborne WWTP was later upgraded to include additional biosolid removal methods and ultraviolet (UV) disinfection.[56]

The 2007 resource consent was followed by a variation in 2009 which allowed for a single BTF and for the WWTP to be moved to a new site closer to the city.

In 2015 a further consent variation was sought which allowed the deferral of the stage two construction to allow GDC and a Wastewater Technical Advisory Group (WTAG), a community stakeholder group, to further investigate the technical feasibility of alternative treatment and disposal options.

The current wastewater treatment system involves milli screening, to remove larges items like metal, plastics, and wipes, grit removal through a vortex grit chamber, wastewater is then pumped into the BTF where it is transformed into organic matter through a process called biotransformation. Treated wastewater is then pumped to lamella clarifiers where solids are removed for composting, then the treated wastewater is filtered and ultraviolet disinfected before being pumped through a marine outfall 1.8km offshore into the ocean at Tūranga nui a-Kiwa. Human wastewater is required to be treated to a higher level than industrial wastewater.

In 2021, GDC was granted a 15-year resource consent permitting the discharge of untreated wastewater overflows to water. Overflow frequency varies from year to year as it is often dependant on rainfall levels. Between 2006 and 2021 there were a maximum of four overflow events in any one year. It is not clear how recent significant weather events (including Cyclone Gabrielle) may have impacted that number.[57]

[56] Rachel Shaw, Wolfgang Kanz. 2022. Balancing a community's wastewater aspirations with affordability - the Gisborne experience. p. 4.

During engagement, mana whenua shared that they do not support the transportation of biosolids to Paeroa (approximately 350kms distance), both because the biosolids are disposed of into landfills and because transportation shifts responsibility for disposal to another region. Mana whenua would like to see more innovation to appropriately dispose of biosolids and enable re-use, such as burning waste for energy or using biosolids as fertiliser. Alongside mana whenua, farmers are also interested in exploring beneficial re-use.

3. Wastewater Network Overflows

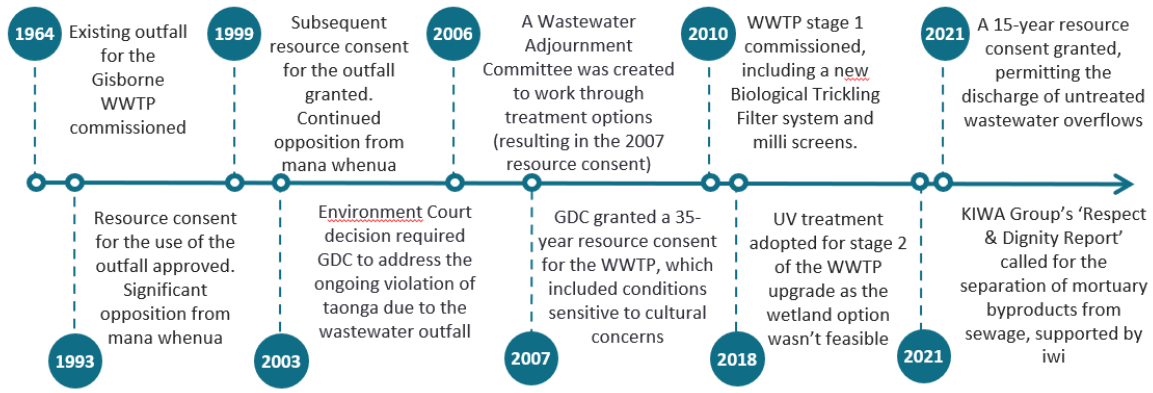
In 2021, GDC was granted a 15-year resource consent permitting the discharge of untreated wastewater overflows to water during rain events that result in wastewater network surcharge through the impact of stormwater inflow and infiltration. These managed overflows are to prevent wastewater overflows on private properties.

GDC's DrainWise programme was developed to help prevent network wastewater overflows by addressing stormwater entering the wastewater system through direct flow from downpipes and gully traps, private property flooding topping gully traps, and infiltration through damaged network pipes. The programme includes on-property inspections of stormwater pipes and gully traps, installation of public drains on private properties to prevent localised flooding, and stormwater and wastewater pipeline renewals. To date the programme has increased network capacity to six times normal dry weather flows.

Overflow frequency varies from year-to-year as it is dependent on rainfall levels. Between 2006 and 2021 there were a maximum of four overflow events in any one year. Recent significant weather events (including Cyclones Hale and Gabrielle) did have an impact due to their size and scale.

Throughout the development of the WWTP, mana whenua strongly opposed resource consent applications – including through the Environment Court – as they sought solutions which better reflected tikanga-based approaches to wastewater management. Figure 1 sets out an overview of the history of the WWTP and key points of challenge from mana whenua. Mana whenua involvement is discussed in further detail below.

Figure 1
Overview of Gisborne WWTP history



4. History of mana whenua involvement with wastewater management

Mana whenua have opposed the discharge of untreated wastewater into water for decades, advocating strongly for the highest level of treatment before wastewater is discharged to any rivers or waterways within the region. They have also shown a continuous desire to be involved in the whole wastewater process, given the tapu nature of wastewater. Mana whenua consider treatment alone to be insufficient, noting that contact with land and natural purification processes prior to discharge to water is essential to avoid any negative cultural or spiritual impact on the waterways.

Ngati Porou, Ngāti Oneone, Ngāi Tāmanuhiri, and Te Aitanga a Māhaki have referred to the practice of discharging mortuary waste into water as 'culturally abhorrent'. This is because, although all wastewater is considered tapu, wastewater containing mortuary waste holds a higher degree of tapu due to its connection to the deceased and therefore poses a greater risk to the mauri of the water and those who undertake activities in those waters.

The Tai Rāwhiti Resource Management Plan (TRMP) was introduced in 2017 to assist GDC to achieve the purposes of the Resource Management Act 1991 (RMA), and to promote the sustainable management of natural and physical resources. The TRMP contains overarching provisions relating to mana whenua interests, aspirations and involvement in resource management and requires Māori values to be taken into account and to be upheld in the planning process and reflected in outcomes. These provisions strengthen the legislative requirements for GDC to involve mana whenua in wastewater management.[58] Notwithstanding that mana whenua contributions and efforts over time have contributed to improved outcomes.[59]

There are three main forums which currently provide and enable mana whenua involvement, requiring significant effort and advocacy from mana whenua in wastewater management:

- **Wastewater Standing for Council (WSC):** Established as a requirement of the WWTP resource consent and was involved in the resource consent relating to discharge to sea. The WSC is tasked with monitoring compliance with consent and permit conditions relating to the WWTP, exploring feasible options for alternative use and disposal of wastewater and identifying projects to improve the mauri and water quality of Tūranganui a Kiwa. The WSC is comprised of four Councillors and four mana whenua representatives and must provide an annual report to the Chief Executive of the GDC.[60]
- **KIWA Group:** Provides specialised cultural and technical guidance as instructed by the WSC to support the improvement of water quality and the mauri of the water. In 2020, as part of the resource consent requirements of the TRMP, the group partnered with GDC to undertake mana whenua and key stakeholder engagement for wastewater overflows and discharge options. This group is comprised of representatives from Te Rūnanga o Tūranganui-a-Kiwa, Te Aitanga-a-Māhaki, Ngāi Tāmanuhiri, Te Whānau-a-Kai, Ngā Ariki Kaipūtahi, Ngāti Oneone and the GDC.[61] Ngāti Oneone having been part of this group since 2016. In 2022 the WSC appointed the KIWA Group to provide for the functions of the Tangata Whenua Reference Group.
- **Tangata Whenua Reference Group (TWRG)** Provide a mātauranga Māori perspective into the implementation of the wastewater overflow consent. The aim is to work with Council, partners and other stakeholders to progressively reduce wastewater overflows and mitigate

[58] GDC. 2023. Tairāwhiti Resource Management Plan – Part A.

[59] Taumata Arowai, Wastewater Standards – Gisborne engagement notes. p. 2.

[60] Wastewater Management Committee 1 September 2022 (gdc.govt.nz)

[61] KIWA group. 2020. Wastewater Overflows in Wet Weather Storm Events and in Dry Weather. p. 1.

adverse effects, improve the quality, health and mauri of the waterways of Tūranganui-a-Kiwa.

During engagement, mana whenua expressed a view that the engagement approaches employed by GDC, and government agencies is piecemeal, ineffective and often with insufficient resourcing. Mana whenua are often engaged separately on topics that should be considered holistically, such as source water, discharges, and drinking standards, and on different elements of the wastewater management cycle. This approach appears disjointed, lacks coordination and leads to significant overlap and duplication of efforts and resources and erodes trust, which negatively impacts the relationship between mana whenua and the GDC. High staff turnover within the GDC was a factor raised that impacted long-term relationships with mana whenua.[62]Mana whenua also noted that better long-term planning is needed.

In 2021, the KIWA Group, through lengthy involvement from 2009, provided cultural and technical support to the GDC which ultimately resulted in the introduction of a bylaw focussed on ensuring mortuary waste is separated from the public wastewater system. This is considered to be a pragmatic solution achieved through collaboration which strikes the right balance between mana whenua values and modern wastewater requirements.

During engagement, mana whenua representatives noted that they want a wastewater system that is innovative and fit for purpose now and into the future, and expressed a clear view that there is room for GDC to improve its engagement so that is more meaningful, including:

- Engaging with mana whenua collectively and holistically on all matters concerning wastewater treatment and discharge;
- Recognising and prioritising the expertise of mana whenua, as:
    - they have the capability to measure, monitor and speak to the mauri of wai;
    - the mātauranga Māori components should drive the process of wastewater management, and the technical aspects fill the gaps as relevant; and
    - rather than have western science experts develop wastewater standards, mana whenua should be the first point of call and acknowledged as experts in their own right
    - acknowledgement that mana whenua contributions over time are highly valuable, and lead to improved outcomes.[63]
- The engagement processes needs to empower mana whenua to be able to identify what outcomes are required and enable them to work with stakeholders to achieve them.

5. Mana whenua perspectives on the impact of wastewater discharge in their takiwā

As part of the TRMP, GDC requires resource consent to be obtained for overflows. The TRMP also required GDC to undertake engagement with mana whenua regarding overflows. In 2020, GDC partnered with the KIWA Group to support this engagement. Tikanga and mauri were key discussion points throughout this consultation, and the KIWA Group used previous reports and the Mauri Compass. The Mauri Compass is an environmental assessment tool to measure the effects on wastewater overflows on mana whenua, the whenua and the Māori customary rights and practices. Although some mana whenua groups did not support the use of the Mauri Compass, all groups ultimately supported the conclusions and recommendations presented by the KIWA Group.[64]

[62] Taumata Arowai, Wastewater Standards – Gisborne engagement notes. p. 1.

[63] Taumata Arowai, Wastewater Standards – Gisborne engagement notes. p. 3.

[64] KIWA Group. 2020. Wastewater Overflows in Wet Weather Storm Events and in Dry Weather. p. 16.

This consultation brought to light the perspectives and concerns of mana whenua, especially concerning the health of rivers, coastal ecosystems, on Tūranga-nui-a-Kiwa– these are summarised below:

- Wastewater overflows are fundamentally unacceptable to mana whenua. The effects have a significant impact on them; spiritually, socially and culturally;
- The overflows significantly hinder key cultural practices, making it nearly impossible to restore the waterbody to a safe and balanced state (through practices like kaitiakitanga); and
- The presence of human wastewater in natural water environments is unacceptable to mana whenua ethics and values, with mortuary wastewater being particularly abhorrent both physically and spiritually.

While efforts to reduce wastewater overflows are seen as positive, mana whenua desire for the total elimination of these overflows.[65]

6. Mana whenua involvement in resource consenting processes and treatment arrangements

The original resource consent for the Gisborne WWTP was granted in 1991, and included a provision that the GDC would create a long-term wastewater disposal scheme. In 1999, the GDC applied for a seven-year extension but was granted an extension of four years.[66] In 2005, GDC applied for a new resource consent for the WWTP based on a stage-one primary treatment plant and a stage-two high rate activated sludge treatment plant with UV disinfection of domestic wastewater. Mana whenua strongly opposed this application on the grounds that the existing practice of discharging wastewater to the ocean impacted the relationship of mana whenua to their environment and prevented them from engaging in certain tikanga, such as, kaitiakitanga and manaakitanga.

A Wastewater Adjournment Review Committee (WARG), including mana whenua representation, was established to resolve the issue and find a path forward. Mana whenua representatives on the WARG advocated for the BTF as a better option for treating domestic wastewater, and later for the further removal of biosolids and the installation of UV disinfection.

In 2007, the GDC was granted a 35-year resource consent for the WWTP and the GDC commenced design of the Gisborne Wastewater Scheme that year.[67]

Mana whenua representatives in engagement for this case study shared that they do not believe that resource consents should be issued for such long periods of time (i.e., 35 years). A five-year consent is preferable, and in the view of mana whenua should not be burdensome if WWTPs are meeting performance standards. Mana whenua support the devolution of condition monitoring to hapū to help ensure that performance standards are met, noting their key role in monitoring the awa.[68]

[65] KIWA Group. 2020. Wastewater Overflows in Wet Weather Storm Events and in Dry Weather. p. 4.

[66] Rachel Shaw, Wolfgang Kanz. 2022. Balancing a community's wastewater aspirations with affordability - the Gisborne experience. p. 2.

[67] Chris Johnston-French et al. 2016. Gisborne Wastewater Scheme: successfully re-defining a community project. p. 1.

[68] Taumata Arowai, Wastewater Standards – Gisborne engagement notes. p. 4.

In 2021, the GDC was granted a 15-year resource consent permitting the discharge of untreated wastewater from dry and wet weather overflows. The resource consent includes several conditions relating specifically to mana whenua, including the establishment of a Tāngata Whenua Caucus to provide vital cultural expertise and advise on the management of overflows, and a cultural monitoring plan to illustrate the effects on cultural indicators.

7. Identification of solutions and uptake of new technologies

The Gisborne WWTP integrates new technologies which better protect the environment and uphold Māori values. One of the key technologies discussed in this case study is the BTF system, which efficiently processes organic waste while minimising the ecological impact of discharges into the ocean. Complementing this is the UV treatment that makes sure that discharges meets ecological standards.

Additionally, the WWTP is aiming to address mana whenua concerns by further exploring sustainable biosolid disposal methods, such as waste-to-energy conversion and fertiliser use. Since late 2023 Biosolids have been removed from wastewater and are composted. The potential introduction of constructed wetlands offers a natural treatment solution that could improve biodiversity outcomes and better aligns with mana whenua preferences for land-based discharge. These wetlands are included in stage three of the wastewater treatment plan.

7. Ways that wastewater treatment has given expression to mana whenua values, tikanga and mātauranga

As discussed in the previous section, the use of the BTF system, UV treatment, and the exploration of sustainable biosolid disposal methods (since late 2023) are some of the ways that wastewater treatment can give better expression to mana whenua values, tikanga and mātauranga. Additionally, the creation of a bylaw to separate mortuary waste from the public wastewater system addresses a significant cultural concern and ensures that wastewater treatment processes better align with tikanga Māori.

The advisory groups as discussed in section 3 also provide a platform for mana whenua to offer advice and advocate for their values and perspectives to be integrated into wastewater management practices. Moreover, the TRMP requires mana whenua consultation before a resource consent is approved, providing another mechanism for identifying mana whenua views, aspirations, and concerns in wastewater management.

8. Summary of key insights

8.1 Successful Elements

- The WWTP's use of a biological trickling filter system and UV treatment technology has improved water quality and ecological outcomes.
- The establishment of advisory groups has allowed space for mana whenua to share their concerns and aspirations for wastewater management in their takiwā.
- The partnership between GDC and the KIWA Group in the resource consent process for overflows allowed tikanga and mauri aspects of water to be central points of the consenting process.
- Mana whenua advocacy has led to the introduction of a bylaw, ensuring the separation of mortuary waste from the public wastewater system. This will benefit the health of the river from both an ecological, and a mātauranga Māori standpoint.

8.2 Opportunities to improve

- Mana whenua representatives feel the GDC and government agencies should adopt a more inclusive strategy that involves them in all aspects of wastewater management.
- Similarly, mana whenua identified challenges to building enduring relationships with the GDC and recommend more frequent and in-depth engagement that strengthens connections.
- Mana whenua also noted that they often had to repeat themselves across multiple engagements, and that engagements have not necessarily led to the desired outcomes.
- Mana whenua have expressed a preference for shorter resource consent durations, which would allow for more frequent reviews and adjustments to make sure the WWTP is meeting performance standards and adapting to changing needs.
- There is a desire among mana whenua for more innovative solutions for biosolid reuse and disposal that does not shift responsibility to other regions.
- There is a perception from mana whenua that many of the environmental issues currently suffered are caused by a lack of monitoring of the conditions stipulated by the resource consents.

8.3 Key themes

- Mana whenua are pragmatic and will find solutions if the relationships are strong and engagement is meaningful.
- Mana whenua need to be recognised as experts in their own right and also benefit from having technical experts that they trust and respect to inform their insights and perspectives. There is a strong desire among mana whenua for wastewater treatment processes to be led by mātauranga Māori, with technical experts supporting rather than driving the development of standards.
- Mana whenua aspire to have wastewater systems that are not only innovative and fit for purpose but also reflective of their values and capable of adapting to future needs.
- The cultural and spiritual impacts of wastewater discharge on the mauri of the moana and mana whenua underscore the need for treatment solutions that respect tikanga and the natural environment.
- The engagement and involvement of mana whenua in all stages of wastewater management — from planning and design to monitoring and reporting—are crucial for achieving outcomes that honour their rights, interests, and aspirations.

In summary, this case study explored the integral role of mana whenua in shaping wastewater practices that better align to their cultural values and protect the environment. The journey so far has provided some good examples on how mātauranga and western science can complement each other for the betterment of the environment and all people.

Case Study: Porirua Wastewater Treatment Plant

1. Introduction

The Porirua Wastewater Treatment Plant (WWTP) case study details the experience of Ngāti Toa Rangatira (Ngāti Toa) and how wastewater treatment arrangements can give effect to the aspirations of mana whenua. This case study provides a high-level overview of key facts relating to the Porirua WWTP, as well as a brief history of perspectives and engagement regarding the wastewater treatment

processes, and how the practices of the WWTP have allowed for the expression of mana whenua values, tikanga, and mātauranga.

Outlined in this case study are:

- The experiences of Ngāti Toa through the consenting process for the Porirua WWTP;
- The cultural impacts of wastewater treatment processes in Porirua, the impacts of urban development, and wet weather overflows;
- An overview of engagement with Porirua City Council and Wellington Water on a range of initiatives to improve the health and wellbeing of Te Awarua o Porirua (Porirua Harbour); and
- The cultural monitoring programme that has been established in partnership for Porirua Harbour.

The insights in this case study were informed by an engagement hui with representatives from Te Runanga o Toa Rangatira, the mandated iwi authority for Ngāti Toa who are the mana whenua of the Porirua area.

2. Overview of the Porirua Wastewater Treatment Plant

The Porirua WWTP is in Tītahi Bay, Porirua, within the takiwā (territory) of Ngāti Toa Rangatira (Ngāti Toa). Porirua City Council holds a resource consent to discharge treated wastewater to water via coastal outfall. Wellington Water operates and maintains the WWTP on behalf of the Porirua City Council.[69] The Porirua WWTP's resource consent was renewed in 2023 for a period of 18 years and the WWTP was recently upgraded to improve the plants' treatment capacity, address the issues caused by overflows, and to respond to population growth.

Wastewater is treated at the Porirua WWTP using a screening process, bioreactors, clarifiers and ultraviolet (UV) treatments. Treated wastewater is then discharged to the Cook Strait via a coastal outfall at Rukutane Point. Biosolids are separated from the wastewater during the treatment process and disposed of at Spicer Landfill in Kenepuru, Porirua.

Overflows often exceeded the Porirua WWTP's treatment capacity (previously 950L/s but has recently been upgraded to 1500L/s). When treatment capacity was exceeded, untreated wastewater bypassed the secondary treatment process and discharged at Rukutane Point. Bypasses are standard practice for wastewater treatment. Despite the 2015/16 WWTP upgrades, in 2019 it was estimated that there were approximately 22 bypass events annually.[70] A hydraulic upgrade was completed in September 2022.

The main issues facing the Porirua and wider wastewater network are wet-weather overflows and dry-weather leaks. These issues are caused by a low network capacity, population growth putting pressure on capacity, high inflow and infiltration from rainfall, climate change, an aging network, and a lack of adequate funding into capital and maintenance.

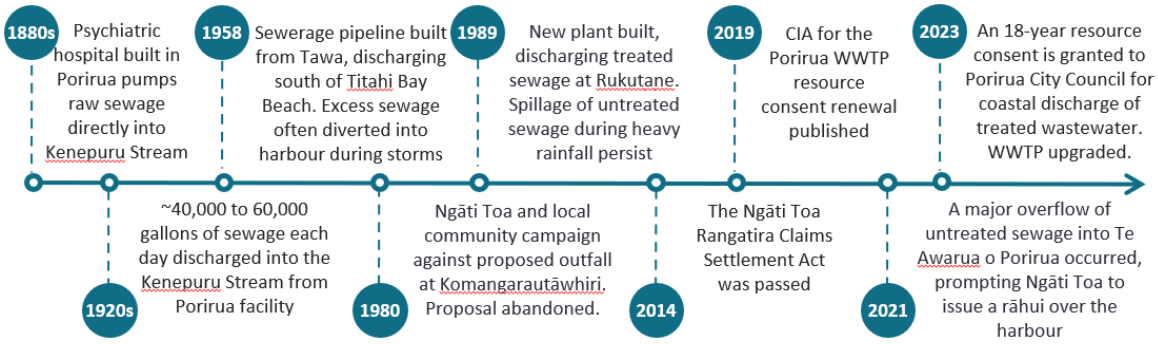
Iwi mentioned that there have been significant overflow issues. As such, a lack of up-to-date monitoring information inhibits the ability of some authorities to understand the issue and respond.

[69] Wellington Water. 2020. Porirua WWTP – Discharge of Contaminants to air. P.18.

[70] Te Rūnanga o Toa Rangatira. 2023. Cultural Impact Assessment. P.9.

Figure 1 - Location of Porirua Waste Treatment Plant (Google. Google map of Titahi Bay. Retrieved 2024)

Overview of Porirua WWTP history



3. History of mana whenua involvement with wastewater treatment in Porirua

Through engagement Ngāti Toa highlighted the following actions that led to the heavy pollution of the Porirua Harbour:

- A psychiatric hospital was built in Porirua in the 1880's. Raw sewage from the hospital was pumped directly into the Kenepuru Stream
- In 1965, Porirua City was established which increased wastewater treatment requirements and led to infrastructure problems such as the cross-connection of stormwater pipes to wastewater pipes. Some of these cross-connections are still in place today and contribute to wastewater overflow issues.
- Substantial reclamation activity occurred in the 1960's which altered the Kenepuru Stream and the Parumoana Arm of Te Awarua o Porirua.
- From the 1940-80's raw sewage was discharged directly into the harbour.[71]

[71] Taumata Arowai, Wastewater Standards – Porirua engagement notes. P.2.

Ngāti Toa expressed that in a short period of time they have witnessed the environmental degradation of the Porirua harbour caused by urban development and wastewater pollution from network discharges. This degradation is within the living memory of some kaumātua (elders) who still recall gathering shellfish when the harbour was healthy and how over time the wastewater impacts meant those activities have ceased.

3.1 Ngāti Toa Rangatira Claims Settlement Act 2014

Ngāti Toa settled their historic Treaty of Waitangi settlement claims with the Crown in 2014. The Ngāti Toa Rangatira Claims Settlement Act 2014 (the settlement) outlines the Crown's apology for failing to protect the interests of Ngāti Toa and the grievances caused by Crown actions.

The settlement provides statutory acknowledgements for a range of culturally significant places, including the waters and resources of Te Moana o Raukawa (the Cook Strait area). The coastal statutory acknowledgement for Te Moana o Raukawa requires Ngāti Toa values related to this area to be considered through RMA processes.

The settlement also provides for Ngāti Toa to develop a Poutiaki Plan for Te Moana o Raukawa. Ngāti Toa are currently developing this as part of their broader iwi environmental management plan for the Porirua Harbour. The Poutiaki Plan gives legislative recognition to the principles, values and kaitiakitanga of Ngāti Toa over Te Moana o Raukawa. Once finalised and approved by Te Rūnanga o Toa Rangatira, the Poutiaki Plan must be taken into account by local authorities.[72]

4. Mana whenua perspectives on the impact of wastewater discharge in their takiwā

Ngāti Toa exercise kaitiakitanga in the Porirua Harbour catchment. Wastewater discharges, contamination, stream pollution, sedimentation, rubbish and foreshore degradation are having a direct impact on the harbour. In years to come, the harbour will increasingly be affected by climate change including drought, flooding, rising sea temperatures, storm-surges and sea level rise.[73]

Ngāti Toa view the discharge of human waste into the Porirua harbour as culturally and spiritually abhorrent, irrespective of the level of treatment.[74] The contamination caused by wastewater discharge has impacted marine species and in turn impacted Ngāti Toa's mahinga kai (food gathering) practices. The Porirua Harbour was once a thriving and abundant food source, however due to the pollution of the harbour, shellfish are no longer easily accessible. As an example, the cockle beds are now increasingly so deep that they are hard to find (even for monitoring purposes) and would be unsafe to eat. Ngāti Toa are losing their mātauranga associated with this practice as a result. Te Rūnanga o Toa Rangatira have set a long-term aspiration to gather and eat kaimoana from the harbour again and ensure that their connection to the taiao (environment) through such practices remains strong.[75]

The health and wellbeing of Ngāti Toa is intrinsically connected to the health and wellbeing of the harbour. Improving the harbour's health and wellbeing and restoring its mauri is therefore a strategic priority for Te Rūnanga o Toa Rangatira. The role and place Ngāti Toa has as kaitiaki is deeply embedded and passed on as part of their history of resistance and responsibility to the taiao.

Ngāti Toa did note during engagement that although Wellington Water and Te Rūnanga o Toa Rangatira both want to stop the existing wastewater discharge to water (open coast), and prefer a

[72] Ngāti Toa Rangatira Settlement Claims Act 2014, s. 147.

[73] Te Rūnanga o Toa Rangatira. 2024. Te Awarua o Porirua, Towards restoration and monitoring plan, P.19.

[74] Te Rūnanga o Toa Rangatira. 2023. Cultural Impact Assessment. P.9.

[75] Taumata Arowai, Wastewater Standards – Porirua engagement notes. P.1.

land-based discharge approach, Wellington Water is restricted by financial barriers and environmental constraints making such a shift highly unlikely in the foreseeable future.[76]

5. Mana whenua involvement in resource consenting processes and treatment arrangements

Te Rūnanga o Toa Rangatira is involved with seven WWTP's within the Wellington and Marlborough region.[77] Their focus has been on the Porirua WWTP. Ngāti Toa participate in a few different arrangements related to the Porirua Harbour catchment which are relevant to wastewater management in the area:

- **Porirua Wastewater Treatment advisory group:** Ngāti Toa are members alongside Wellington Water and Porirua City Council. This group has a mandate to focus on the conditions in the 2023 consent application specific to the Porirua WWTP, rather than the holistic network issues.
- **Te Awarua o Porirua Whaitua Committee (Whaitua Committee):** The purpose of the Whaitua Committee is to recommend ways to maintain and improve water quality within the Porirua Harbour catchment. The Committee completed a Whaitua Implementation Programme which contains objectives, strategies and actions to manage land and water to improve fresh and marine water quality. These recommendations and those of Te Mahere Wai o Te Kahui Taiao were incorporated into Greater Wellington's Plan Change 1 to the Natural Resources Plan.
- **Porirua Harbour Accord:** The draft Harbour Accord, developed primarily by Porirua City Council and Te Rūnanga o Toa Rangatira, sets out an agreed vision, objectives and principles for the restoration of Te Awarua o Porirua. It is proposed that the Harbour Accord will be ratified and approved by the five key agencies relating to the harbour: Te Rūnanga o Toa Rangatira (on behalf of Ngāti Toa), Porirua City Council, Wellington City Council, Greater Wellington Regional Council and Wellington Water. It is also intended that community groups and organisations can collaborate in achieving the Harbour Accord. The Cultural Monitoring programme referred to at section 6.1 is part of the activity associated with the Accord.[78]

Ngāti Toa expressed that requests for their involvement in advisory groups is often reactive and time consuming, rather than proactive and solutions focused.

Ngāti Toa have strong working relationships with Porirua City Council, Greater Wellington Regional Council and Wellington Water which have grown over time and are valuable, even if parties don't always agree. Mana whenua acknowledge the importance of building long-term relationships with partners such as councils, research institutes and central government to collaborate for shared outcomes.

Te Rūnanga o Toa Rangatira have built significant capacity within their taiao team which enables them to engage and collaborate more effectively with different local authorities, central government and other partners. Te Rūnanga o Toa Rangatira has invested in increasing capacity in the taiao team, so they do not need to rely on contractors. Ngāti Toa also stated that it is important for people to have the right skillset when sitting on governance boards, and that independent technical advice is important to support their participation.[79]

[76] Taumata Arowai, Wastewater Standards – Porirua engagement notes, P.5.

[77] *Kapiti Coast, Porirua, Lower Hutt, Upper Hutt, Blenheim, Tasman and Nelson.*

[78] Taumata Arowai, Wastewater Standards – Porirua engagement notes, P.3

[79] Taumata Arowai, Wastewater Standards – Porirua engagement notes. p. 4.

Ngāti Toa have described the wider network as a significant challenge, resource consents are only issued for individual WWTP's and there have been challenges with consenting decisions and conditions. The resource consenting process isolates the Porirua WWTP as a singular issue which makes it difficult to input into options to upgrade or improve the broader network which involves multiple WWTP's.[80]

Further, urban development and infrastructure capacity is another challenge that requires a holistic all of catchment and long-term planning approach. Wellington Water is guided by decisions made by the Council's long-term plan process. An example is the de-prioritisation of the Paremata upgrade due to financial constraints.[81]

6. Identification of solutions and uptake of new technologies

Ngāti Toa recognise that sustainable approaches are being developed at other WWTP's within the broader region and see an opportunity to work with the Porirua WWTP to identify and achieve similar solutions. Ngāti Toa are extremely open to knowledge sharing and identifying new technologies that can be adopted in their rohe to address some of their wider network and overflow challenges.[82]

The topography of Porirua presents a physical challenge to adopting certain technologies or solutions. For example, it is noted previously that land discharge is not an option due to topography constraints (hills, poor draining soils, coastline,). Often there are limited options for wastewater treatment facilities – for example, a holding tank is being developed near the highway to handle overflows that go into the Kenepuru Stream. Other options were also considered as to where the holding tank could be located. Ngāti Toa have taken a pragmatic approach to working with local authorities on wastewater treatment issues and to undertake activity that mitigates negative environmental and cultural effects and restores the health and wellbeing of the Porirua Harbour.

The Long-Term Plan (LTP) projects rapid population growth in Porirua and North Wellington, especially in the Wellington City Council portion of the catchment). Ngāti Toa have expressed concern that infrastructure is not being upgraded in time to provide for high levels of urban growth which will put further pressure on the wider wastewater network. The council is exploring on-site treatment options for new housing developments as a way to reduce pressure on existing infrastructure and reduce the chances of overflows. Ngāti Toa supports this approach.
An initiative, 'know your pipes', was set up to reduce the amount of wastewater discharging to the environment. Three local councils, Wellington, Hutt Valley, Porirua, have funded Wellington Water (with Te Rūnanga o Toa Rangatira), to improve broader community understanding, increase capability, gain knowledge of the network, and reduce cross contamination from private property laterals through this programme. Initial results of this initiative have been successful in engaging the community however, funding for fixing pipe connections is very limited or non-existent.[83]

Community education is important to ensure that the wider community is aware of the impacts of wastewater treatment within Porirua. Issues are currently 'out of sight and out of mind'. Ngāti Toa hosted a screening at Takapūwahia Pā relating to the restoration work for the harbour which was a successful way of connecting the mana whenua with this wider work.

Ngāti Toa outlined their ideal involvement in these processes would be:

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[80] Taumata Arowai, Wastewater Standards – Porirua engagement notes. p. 1.

[81] Taumata Arowai, Wastewater Standards – Porirua engagement notes. p. 2

[82] Taumata Arowai, Wastewater Standards – Porirua engagement notes. p. 4.

[83] Taumata Arowai, Wastewater Standards – Porirua engagement notes. p. 2.

- Being part of a collective who use a collective framework to inform the LTP, and are funded to undertake this work
- Involvement in investment decision-making
- Adoption of indigenous solutions and methods
- Consideration of holistic impacts of the Porirua WWTP, and adoption of a holistic plan for the future including increased re-use of water and biosolids, and
- Exploration of different landfill options.[84]

6.1 Cultural Health Monitoring Programme

Ngāti Toa have partnered with Victoria University and the Institute of Environmental Science and Research (ESR) to develop and undertake a cultural monitoring programme within the Porirua Catchment. This programme is completely mana whenua led. The cultural health monitoring data has been instrumental to drive change through various channels such as the Porirua Harbour Accord.

Seven cultural monitoring sites have been set up in Te Awarua o Porirua including at Rukutane Point. For the first time there will be cultural health data available for paua, kina, karengo, temperature rise and microplastics. Results so far have not been good, including the presence of *E. coli* and heavy metals in the harbour. Ngāti Toa are also involved in monitoring and sampling which is an effective way of reconnecting mana whenua with the harbour and environment.[85]

7. Ways that wastewater treatment has given expression to mana whenua values, tikanga and mātauranga

Mana whenua are deeply committed to restoring the mauri of the Porirua Harbour. This case study has outlined several engagement mechanisms that Ngāti Toa have been involved in, including the Porirua Wastewater Treatment advisory group, Whaitua Committee and Porirua Harbour Accord. These mechanisms allow for Ngāti Toa to partner with councils and government agencies to improve the health and wellbeing of the Porirua Harbour in the exercise of their role as kaitiaki.

Ngāti Toa take a pragmatic approach to working with their partners. There are often limited options available for wastewater treatment due to financial or environmental constraints, which can mean that Ngāti Toa values are not reflected in these wastewater treatment arrangements (e.g. continued discharge of wastewater at Rukutane Point). Ngāti Toa continue to make progress in different areas, such as through the Porirua Harbour Accord and value the relationships that are being built with different partners. Good relationships help to improve cultural awareness and understanding which leads to better outcomes for everyone.

The Cultural Health Monitoring Programme is also an innovative initiative that has provided critical data on the cultural health of the harbour. Sampling sites are in traditional mahinga kai areas to provide iwi with data relevant to their aspirations. The objectives of the programme include reconnecting mana whenua with the environment. It is important for Ngāti Toa to continue to share their work with whānau, and to educate the broader community to bring awareness to the issues caused by wastewater discharges.

[84] Taumata Arowai, Wastewater Standards – Porirua engagement notes, P.4

[85] Taumata Arowai, Wastewater Standards – Porirua engagement notes, P.3.

8. Summary of key insights

8.1. Successful elements

- Strong relationships are held between Ngāti Toa, Wellington Water, Porirua City Council and Greater Wellington Regional Council. These relationships are fundamental to making progress to address the environmental issues affecting the Porirua Harbour. All parties have invested heavily in creating long-term and trust-based relationships.
- The Cultural Health Monitoring Programme for the Porirua harbour has been instrumental in providing data to help drive positive change. This process is mana whenua-led and delivering successful results.
- Mana whenua-led initiatives such as their cultural health monitoring programme have enabled Ngāti Toa to exercise their kaitiakitanga through catchment-level restoration plans.

8.2. Opportunities to improve

- There are challenges across the network that aren't currently being considered holistically. An all of catchment approach and long-term strategic planning would be beneficial to identify and address broad network issues.
- Te Rūnanga o Toa Rangatira would like to have a greater level of involvement in matters associated with the Porirua WWTP at Titahi Bay. This includes more regular and early opportunities to contribute.
- Discharge options are limited due to topography and environmental constraints. The adoption of new technology is critical to identify potential solutions.
- Overflows are causing significant pollution of the Porirua Harbour. Adequate monitoring, infrastructure upgrades and planning is required to reduce this issue.
- Community engagement has been positive and there are further opportunities to ensure the broader community understands the impacts associated with the wastewater network.
- Council and partners should take strategic and integrated approach to catchment-level management.
- Council could adopt a long-term and future focussed approach to infrastructure planning and wastewater management for a growing population. Improving mana whenua involvement in the LTP and having a role in determining how funding is allocated would be beneficial.

8.3. Key themes

- Pollution of the harbour has had significant cultural impacts for Ngāti Toa and has led to disconnection to the natural environment.
- Iwi-led initiatives such as the cultural monitoring programme provides important data to support Ngāti Toa involvement in initiatives that protect the health and wellbeing of the harbour.
- All parties need to invest in building strong and meaningful relationships that are founded on trust. This takes time but helps to improve overall engagement and collaboration.
- There is a willingness from community and whānau to engage with issues associated with the Porirua WWTP. Although many in the community are not aware of the depth of issues as they are 'out of sight out of mind'. Community education is important so that there is awareness of the impacts of wastewater pollution.
- Decisions need to be driven by cultural factors and informed by technical expertise. Ultimately, this means mana whenua need to be recognised as experts in mātauranga Māori and held in the same regard as council hold technical experts.
- Mana whenua can find solutions if the relationships are strong and engagement is meaningful.

In summary, this case study demonstrates some of the ways that mana whenua engagement can shape wastewater processes. Strong, collaborative relationships with mana whenua in planning and decision-making processes are crucial to identifying practical solutions that align with Māori values and lead to improved environmental outcomes.

Case Study: Pukekohe Wastewater Treatment Plant

1. Introduction

The Pukekohe Wastewater Treatment Plant (WWTP) case study details the experience of Te Taniwha o Waikato (TTOW), a collective of nine marae[86] of the lower Waikato River, and how wastewater treatment arrangements can give effect to the aspirations of tangata whenua. The case study provides a high-level overview of key facts relating to the WWTP, as well as a brief history of tangata whenua perspectives and engagement regarding the wastewater treatment processes, and how the practices of the WWTP have allowed for the expression of tangata whenua values, tikanga, and maatauranga.

Outlined in this case study are:

- The experiences of TTOW through the consenting, construction and operation processes for the Pukekohe WWTP;
- An overview of the engagement that occurred between Te Taniwha o Waikato (TTOW) and Watercare Services Limited (Watercare);
- Details regarding the collaboration approach between TTOW and Watercare that led to the identification and implementation of a technologically advanced approach to wastewater treatment, improving outcomes for the environment and tangata whenua; and
- Challenges faced by tangata whenua and success factors during the consenting and design process.

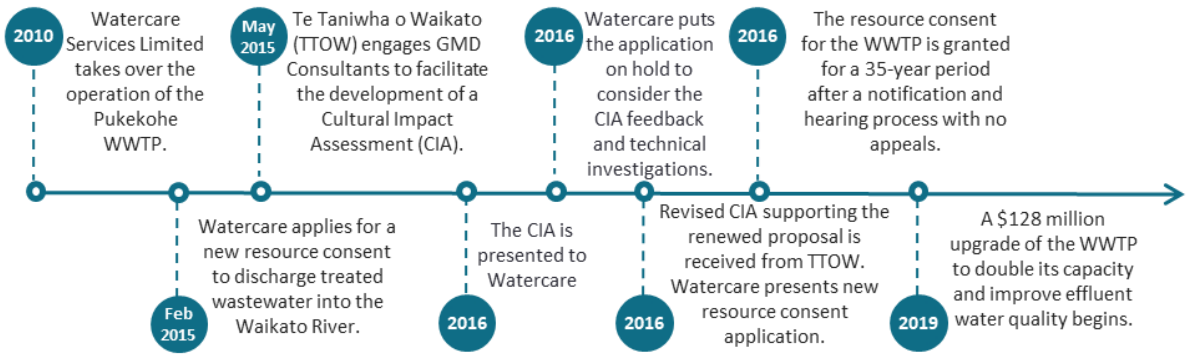
The insights in this case study were informed by engagement hui made up of representatives chosen by the nine TTOW marae.

2. Overview of the Pukekohe Wastewater Treatment Plant

The Pukekohe WWTP is in the Northern region of Waikato. Watercare has owned and operated the WWTP since 2010, when it was transferred from the Franklin District Council (FDC) following a reorganisation of local government under the Local Government (Auckland Council) Amendment Act 2010.The WWTP is responsible for treating wastewater from Pukekohe, Buckland, Patumahoe, Tuakau, and Pookeno.

[86] Oraeroa, Tauranganui, Tikirahi, Te Kotahitanga, Te Awamarahi, Nga Tai E Rua, Mangatangi, Hora Hora, and Maurea Marae, associated with various Waikato hapū.

Overview of Pukekohe WWTP history



In February 2015, Watercare applied for a new resource consent to discharge treated wastewater into the Waikato River. This included a membrane technology treatment and an outfall directly into the Waikato River. In response to the application, TTOW engaged GMD consultants to facilitate the development of a cultural impact assessment (CIA). The CIA was finalised and presented to Watercare in 2016 and concluded the proposal was not achieving the outcomes set out in the vision and strategy under Te Ture Whaimana o Te Awa o Waikato. Watercare paused the consent application to consider the CIA and undertake further work. Over the course of 2016, Watercare worked with TTOW on treatment technology options. In 2017 a 35-year resource consent was granted.

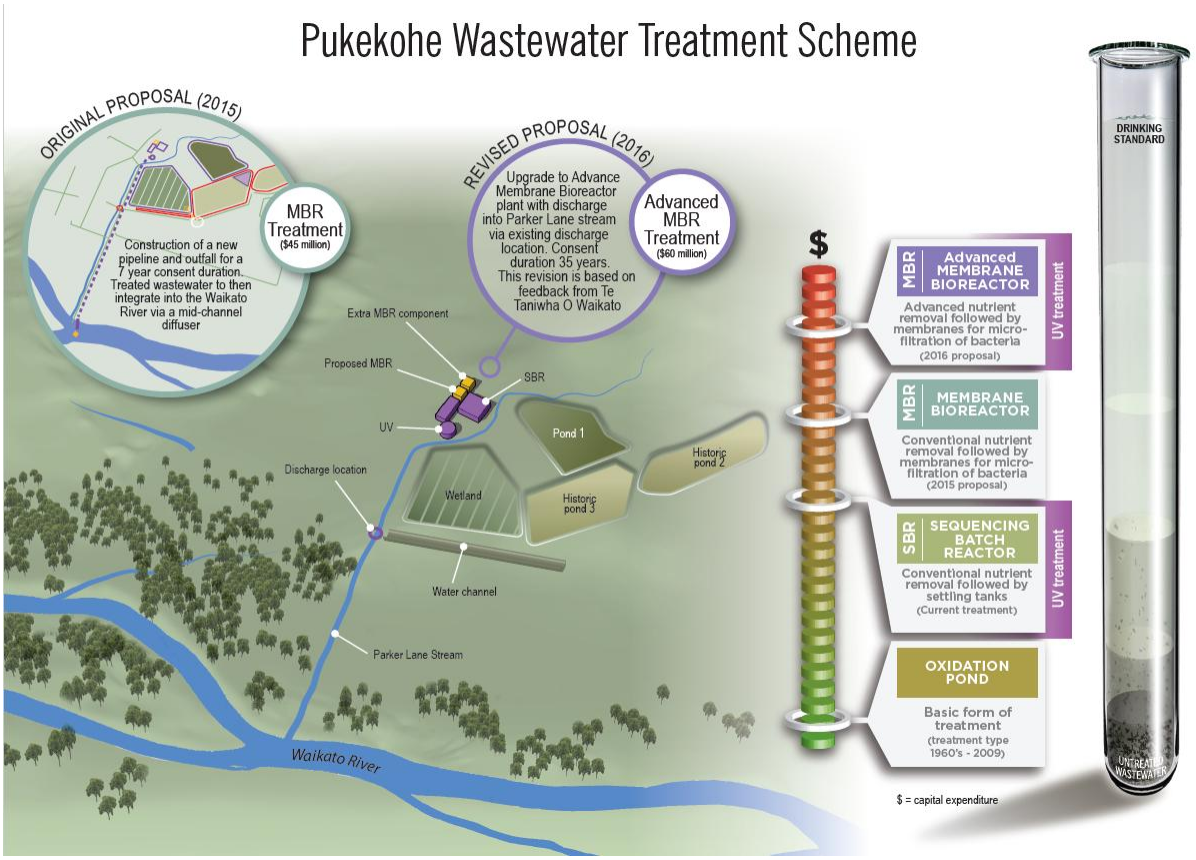


Figure 1: Pukekohe Wastewater Treatment Scheme – image supplied by Watercare

The Pukekohe Upgrade Project commenced in 2019 to increase the capacity of the WWTP to respond to rapid population growth in the Franklin region and improve the quality of treated wastewater that is discharged into the Waikato River. The population serviced by the WWTP is projected to grow from

27,500 to 88,000 by 2051[87]. The project involved a $128 million enhancement doubling the capacity of the plant from 30,000 households to 60,000 households and was completed in 2023.

The Pukekohe WWTP uses a sophisticated treatment process that comprises two sequencing batch reactors (SBRs) for biological treatment and ultraviolet (UV) disinfection to eliminate pathogens. Following these stages, a constructed wetland serves as the final treatment step, providing additional filtration and natural purification. Treated wastewater is then discharged into the artificial wetland that is connected to the Parker Lane Stream, which is a tributary of the Waikato River.

3. History of tangata whenua involvement with Wastewater Treatment

Engagement regarding the WWTP has primarily been undertaken by TTOW, who led the advocacy for tangata whenua with Watercare in the resource consent process. The Waikato River holds significant cultural importance for tangata whenua as being vital to their physical and spiritual well-being.

The Waikato River is the embodiment of a living ancestor or te awa tuupuna and features prominently in oral histories through many whakataukii and waiata. The river's health is inextricably linked to the health of the people, and any adverse effects on the river directly impact the cultural fabric of the whaanau, hapuu and iwi.

A unique aspect of the Pukekohe WWTP's operation is that there are additional legal requirements as the result of settlement legislation, including compliance with Te Ture Whaimana o te Awa o Waikato (Te Ture Whaimana) which emerged from the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010.[88]Te Ture Whaimana is the direction setting document for the Waikato River and applies to the Waikato River and the activities within its catchment affecting the Waikato River. It is inserted in its entirety into the Waikato Regional Policy Statement and a number of District Plans. Te Ture Whaimana has the same status as a National Policy Statement and under certain circumstances can prevail over other particular national policy statements, and national planning or environmental standards. It also has relevance for several other pieces of legislation.[89]

~~4.~~ Tangata Whenua perspectives on the impact of wastewater discharge in their rohe

Tangata whenua perspectives on the impact of wastewater discharge are shaped by the vision to restore the Waikato River quality to a standard, where the water is drinkable, swimmable and the kai is safe to eat for its entire length. TTOW supports the vision as set out in the Waikato-Tainui Environment Management Plan that aspires to the restoration of the environment to the state that Kiingi Taawhiao observed when he composed 'He Maimai Aroha' where he laments his longing for and adoration of the taonga and natural resources of his homeland[90] which were taken as part of the one and a half million acres of land confiscated by the Crown.

TTOW consider that the best option for the health and well-being of the Waikato River is to halt all water takes or discharges. However, taking a pragmatic approach, TTOW considered it to be an acceptable option to discharge to the Parker Lane Stream (a tributary of the Waikato River), where the quality of that discharge would not be detrimental to the objective of restoring the health and well-being of the Waikato River.[91] Land to discharge wastewater to was not available due to the

[87] Pukekohe Wastewater Discharge Consenting (stantec.com)

[88] Legislation NZ. 2010. Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act. S.12.

[89] Ss 9, 11, 12, 15, 16 Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act, 2010.

[90] Tai Tumu Tai Pari Tai Ao, Waikato-Tainui Environmental Plan, p.5, 2013

[91] GMD Consultants on behalf of Te Taniwha o Waikato Cultural Impact Assessment, p.67, 2017. 67

Scheme's capacity requirements, and Pukekohe having highly productive lands that would be put out of action.

Other recommendations made by TTOW regarding the consent conditions include:[92]

- **On-site storage**: provide storage capacity on-site so that the discharge only occurs on an outgoing tide.
- **Natural discharge method**: provide a discharge method that replicates a natural tributary to the Waikato River.
- **Condition amendments**: amend proposed conditions to reflect the higher water quality that was being discharged and remove the significant 'margin' that was being provided.
- **Maatauranga Maaori monitoring**: utilise monitoring conditions based on maatauranga Maaori principles.
- **Support for enhancement projects**: Watercare should support future applications to the Waikato River Authority, as a partner of TTOW, to support enhancement projects.

5. Tangata whenua involvement in resource consenting processes and treatment arrangements

The current resource consent under which the Pukekohe WWTP operates has been significantly shaped by the involvement and contributions of TTOW. The process was initiated when Watercare applied for a new resource consent in February 2015, seeking permission to discharge treated wastewater into the Waikato River. Recognising the cultural and environmental implications of this consent application, TTOW engaged GMD Consultants in May 2015 to facilitate the development of a CIA. This CIA articulated the relevant values, uses and statutory obligations concerning the river, and presented an assessment of options to Watercare.

The development of the CIA involved a series of hui from June to November 2015, where representatives from the marae of TTOW contributed their perspectives. These discussions culminated in a final review of the CIA in December 2015, and the document was subsequently presented to Watercare staff in February 2016. The engagement continued with TTOW presenting the CIA to the Watercare Board in June 2016, leading to the collaborative development of a revised option between the groups.

Watercare's commitment to collaboration with tangata whenua was evident when they put the application on hold in 2016 to consider the feedback presented in the CIA and the results of technical investigations. This pause allowed for a thorough exploration of alternative discharge locations and methods.

By March 2016, a revised CIA supporting the renewed proposal was received from TTOW. Watercare's renewed resource consent application was presented in October 2016, which proposed an Enhanced Membrane Bioreactor and UV disinfection system. This aimed to accommodate the region's population growth and improve the quality of the discharge to the Waikato River.

The resource consent under which the WWTP currently operates was granted in 2017, after a notification and hearing process that included no appeals. The 35-year consent period provides a long-term framework for sustainable wastewater management.

6. Identification of solutions and uptake of new technologies

TTOW, in collaboration with Watercare, developed a preferred option for the resource consent process that was outlined in their Cultural Impact Assessment (CIA). This option, aligned with Te Ture

[92] Watercare – Watertake Resource Consent Application, p. 36.

Whaimana and the aspirations of tangata whenua called for an Enhanced Nutrient Removal Membrane Bioreactor (MBR) and UV Upgrade and Discharge. The Pukekohe Case Study identified that this technology was the best available to provide the treatment and quality of discharge to align to Te Taniwha aspirations for the Waikato awa. This approach aligned with Te Ture Whaimana – Vision and Strategy for the Waikato River as it resulted in improved water quality.

The CIA detailed a two-stage approach for the preferred option. The first stage involves maintaining the current treatment process with discharge to Parker Lane Stream for the initial four years following the approval of the resource consent. The second stage, scheduled to commence after the development phase, includes the implementation of an advanced MBR + UV process.

In the Pukekohe WWTP case study, there was support for treated wastewater to be reused for certain industrial uses to support agriculture or horticulture during drought conditions. There are economic and environmental benefits to this approach by reducing the amount of effluent that is discharged into the Waikato River.

7. Ways that wastewater treatment has given expression to tangata whenua values, tikanga and maatauranga

The recent upgrades to the Pukekohe WWTP reflect the significance of collaborating with tangata whenua to produce an option underpinned by tangata whenua values, tikanga and maatauranga. The engagement and collaboration between Watercare and TTOW led to the adoption of innovative treatment technologies that not only meet the regulatory standards but also began to address the aspirations of tangata whenua.

Upgrades to the WWTP provided for increased demand due to population growth, without compromising the health of the river. While these advancements are a step in the right direction, current operations may not fully encapsulate tangata whenua concerns and aspirations. Tangata whenua have higher aspirations for the Waikato River, for example, the option to treat water to a drinkable standard before discharge was presented by TTOW, but this was considered too costly by Watercare.

The monitoring processes for the WWTP support TTOW to exercise ongoing kaitiaki responsibilities regarding wastewater treatment activities impacting the river. The involvement of TTOW in the monitoring process is part of the conditions of the resource consent for the WWTP. A volunteer community group assists with the monitoring of the WWTP, with reporting on the WWTP's performance provided to TTOW. The group also has decision-making power.

8. Summary of key insights

8.1. Successful elements

- The $128 million upgrade of the WWTP successfully led to improved water quality for the receiving environment.
- The investment of time and resources into writing the CIA and maatauranga strategy supported the decision-making process and supported higher standards.
- Utilising the settlement and Te Ture Whaimana, gave TTOW greater scope for engaging with Watercare to enhance their standards.
- Watercare's funding for engagement and participation, including hui at marae, facilitated better communication and involvement with TTOW.
- The relationship between Huakina Development Trust (the environmental arm for Waikato-Tainui Māori Trust Board) and Watercare set a precedent for collaboration, which TTOW was able to benefit from.

- The Pukekohe WWTP became one of the most advanced in the country through collaborative work with marae representatives to identify options, incorporating innovative technologies.
- Regulatory monitoring of the discharge has improved, with results being shared with TTOW, supporting better oversight and transparency.

8.2. Opportunities to improve

- There was initial hesitation by Watercare to recognise TTOW as the mandated body leading to project delays.
- Early and meaningful engagement with TTOW, and the consideration of Te Ture Whaimana, would have saved time and resources and led to better outcomes.
- High costs prevented the exploration of more sustainable options, such as treating water to drinking standards for reuse.
- The initial discharge solutions presented by Watercare did not meet Te Ture Whaimana obligations and were not accepted by TTOW.
- There could be greater opportunity for standards set to evolve and consideration of conditions to account for changes such as population growth.
- TTOW noted their high level of responsibility to advocate for the awa in these circumstances, despite limited resourcing to do so.

8.3. Key themes

- Wastewater treatment standards should be comprehensive and consider the health of the entire river system.
- Recognition of tangata whenua as key partners early in resource consenting processes can enhance decision-making and lead to more culturally and environmentally appropriate outcomes.
- Collaborative engagement with tangata whenua can support the adoption of innovative technological processes to benefit cultural aspirations and the health of the environment.
- Involvement of tangata whenua beyond the planning stage, for instance, through continued involvement in monitoring and reporting, is necessary to ensure accountability and ongoing participation.
- Adherence to statutory frameworks like Te Ture Whaimana is necessary to ensure the protection and restoration of the Waikato River and its catchment.
- TTOW want a bespoke standard for the Waikato River and its catchment that aligns with the river settlements and Te Ture Whaimana.

In summary, this case study demonstrates how involvement of tangata whenua in the identification and planning of options for wastewater treatment can result in improved practices and standards that better align and give expression to Māori values, improve environmental outcomes for all and provide an exemplar of meaningful engagement leading to positive change.

Case Study: East Rotoiti-Rotomā Wastewater Treatment Plant

1. Introduction

The East Rotoiti-Rotomā Wastewater Scheme (the Scheme) case study details the experiences of Ngāti Pikiao (mana whenua) and how wastewater treatment developments can give effect to the aspirations of mana whenua. This case study provides a high-level overview of the Scheme and key

facts relating to the Rotoiti-Rotomā wastewater treatment plant (WWTP) and its wastewater treatment processes, as well as a brief history of perspectives and engagement undertaken through the development of the Scheme and the WWTP.

Outlined in this case study are:

- The experiences of Ngāti Pikiao through the consenting process for the Rotoiti-Rotomā WWTP and exploration of their values, tikanga, and mātauranga;
- The identification of on-site pre-treatment technologies;
- The engagement undertaken with mana whenua to develop the Scheme;
- An overview of how the collaboration with mana whenua has led to the identification and implementation of new approaches and technologies that will improve environmental outcomes.

The insights in this case study were informed by an engagement hui with representatives from mana whenua – the Ngāti Pikiao Cultural Impacts Team for the Scheme (appointed to act on behalf of Ngāti Pikiao by maintaining a consultative decision-making process with the iwi through the Ngāti Pikiao Council of Elders), and Ngāti Te Rangiunuora whānau representatives.

2. Overview of the East Rotoiti-Rotomā Wastewater Treatment Plant

The Scheme is a collaborative project led by Rotorua Lakes Council (the Council), Rotoiti Rotomā Sewerage Steering Committee (RRSSC), Te Arawa Lakes Trust and Bay of Plenty Regional Council. The project was guided by the Ngāti Pikiao Cultural Impacts Team who provided cultural expertise and technical knowledge.

The Scheme includes a new reticulated network that connects homes in Rotomā and East Rotoiti. A WWTP has been constructed near Lake Rotoiti on land owned by Haumingi 9B3B Ahu Whenua Trust (Haumingi 9B3B).[93] Forty-seven kilometres of reticulated pipes have been constructed as part of the Scheme.[94] All of the homes connected to the reticulated network will have on-site systems installed to provide a high-level pre-treatment of wastewater.[95] Pre-treated wastewater will be pumped from homes and transported through the pipe network to the WWTP for further treatment and disposal. The Scheme also includes three pumping stations, two flushing stations and five flow monitoring sites.[96] This pre-treatment approach reduces the risk of untreated wastewater flowing into the waterways if the pipes should be damaged.[97] The Scheme will service approximately 700 homes – primarily holiday homes which contribute to a population increase at Rotoiti and Rotomā, especially during long weekends and the summer period.

The water quality of Lake Rotoiti is impacted by historic and ongoing contamination from nearby lakes. The Scheme was established in response to growing concerns about the negative impact of inadequately treated wastewater discharges into the lake, including the negative health impacts caused by nutrient build up and algal blooms. Prior to this Scheme, houses in East Rotoiti and Rotomā were not connected to a reticulated network and used septic tanks which leached into the lakes causing environmental issues. The septic tanks were often basic as they were connected to holiday homes.

[93] East Rotoiti and Rotomā sewerage scheme - Rotorua Lakes Council
[94] East Rotoiti and Rotomā sewerage scheme - Rotorua Lakes Council
[95] East Rotoiti and Rotomā sewerage scheme - Rotorua Lakes Council
[96] East Rotoiti and Rotomā sewerage scheme - Rotorua Lakes Council
[97] East Rotoiti and Rotomā sewerage scheme - Rotorua Lakes Council

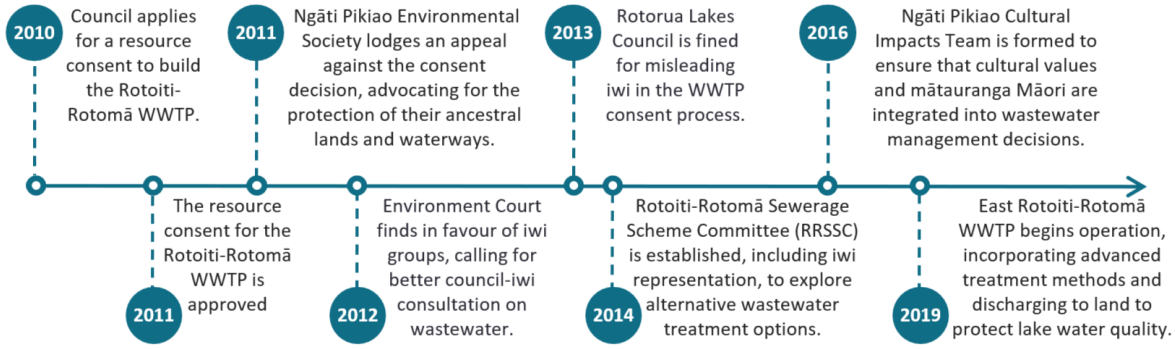
The WWTP employs a series of treatment methods designed to protect the surrounding lakes and environment, including:

- Wastewater is treated in a Membrane Bioreactor (MBR) system. This technology uses a combination of biological processes and membrane filtration to remove organic matter;
- Treated water is subjected to ultraviolet (UV) light, which disinfects the water;
- Natural bacteria are used to remove nutrients. This approach is more expensive in comparison to other approaches due to the use of sugar to feed the bacteria, however these costs are offset by environmental benefits; and
- Wastewater is irrigated into pumice which provide a natural filtration system and safe dispersal.[98]

Further mechanisms designed to reduce negative environmental impacts include capping daily discharge quantities, continuous monitoring of flow rates and on-going monitoring and sampling obligations following wastewater discharge.

On-site pre-treatment systems have been identified for local homes. Rotomā will use Septic Tank Effluent Pumping (STEP) systems and East Rotoiti will use the Biolytix vermifiltration system. Biolytix systems use natural processes to treat wastewater. Tiger worms and microorganisms break down solid waste and treat wastewater as it trickles through the system. The wastewater travels through the reticulated system for further treatment and disinfection at the WWTP, before it is discharged to land.

Overview of East Rotoiti-Rotomā WWTP history



3. Mana whenua perspectives on the impact of wastewater discharge in their rohe

There is strong concern from whānau about discharge to water significantly compromising their ability to practice mahinga kai and utilise Lake Rotoiti as a food source for future generations as was the lived experience of their grandparents who were able to collect large amounts of kai from the lake. Whilst Rotoiti remains a food source for iwi today, this is not to the previous extent, due to impacts such as decreased water quality.

Mana whenua oppose the discharge of wastewater into their lakes and have been consistently proactive in advocating for environmental protection of the lakes. Ngāti Pikiao stated that the mauri of the lakes had been significantly degraded over time as a result.

Mana whenua share a strong preference for land-based discharge over water-based discharge as it more closely aligns with their responsibility to protect and strengthen the mauri of the lakes.

[98] East Rotoiti and Rotomā sewerage scheme - Rotorua Lakes Council

Although wastewater discharged to land ultimately reaches the lake, the buffering effect of the land, particularly in this instance with the soil composition around the WWTP, is a preferred alternative to direct discharge to water. Land-based discharge also provides additional benefits such as a contained area for contamination, making it easier to manage any potential issues that are not currently known or understood.

Mana whenua maintained that the Council view of land-based wastewater discharge is ineffective because of a previous land-based system which failed to meet nitrate level standards.[99] Mana whenua were also clear during engagement that there should be no transfer of waste or biosolids from one area to another. Mana whenua do not support grinder pumps as an effective wastewater management system, their preferred option being a pre-treatment system. However, the Council's tight timeframes limited the ability of iwi to explore alternative systems. At that time, the only pre-treatment option available was the Biolytix vermifiltration (Biolytix) system, chosen primarily because one of the Ngāti Pikiao technical advisors was familiar with it, and its effectiveness. Iwi wanted additional time to consider other options.

In 2014, the Council trialled the Biolytix system, which showed promising initial results. However, six months into the trial, the Council decided to adopt the more established STEP system for Lake Rotomā based on concerns over the limited data around the long-term robustness of Biolytix, and strict scheduling and construction deadlines.

This view was strongly challenged through engagement, noting that despite positive results from the Biolytix trial, the Council chose to adopt the STEP systems despite alternative options being available. In August 2021, a report prepared by Maioro Professionals undertook an assessment of three pre-treatment options, including STEP and Bioloytix systems, as part of the addition of the Rotoehu and Ngamotu communities to the scheme. [100] The report recommended that based on 34 indicators selected to represent a range of mauri factors, Biolytix scored highest in the assessment.[101] Further views were expressed that the STEP system can have long lasting effluent impacts on plant and animal life compared to vermi-composting systems.

After a comprehensive evaluation process involving the Council and mana whenua – the Ngāti Pikiao Cultural Impacts Team and the Ngāti Pikiao Iwi Wastewater Liaison Group – the Biolytix system was selected for use in Rotoiti homes.

Substantial cost increases have been incurred in the development of the Scheme and are being borne by the local community. Initially, the cost of the Scheme per ratepayer was estimated at around $15,000, this has risen to approximately $22,000 as an upfront payment (or $40,000 plus interest over 25 years). The Council has implemented a capital repayment plan for ratepayers whose properties are connected to the Scheme, effective from 1 July 2024. Mana whenua raised concerns about the communication of these cost increases to ratepayers, noting that updates were often untimely. There was also a perception within the community that these increases were due to the level of iwi engagement. Mana whenua stressed the need for better transparency from the Council around the reasons behind the cost increases, to address the assumptions that iwi involvement contributed to the changes.

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[99] *Taumata Arowai, Wastewater Standards – Rotoiti-Rotomā engagement notes. p. 5.*

[100] Inclusion of Rotoehu households in the East Rotoiti-Rotomā Sewerage Scheme: A risked-based mauri assessment p.3.

[101] Ibid, p.17

4. History of mana whenua involvement with wastewater management

Mana whenua have previously used the Waitangi Tribunal to challenge the Council's wastewater discharges into the lake which resulted in a shift towards a land-based discharge approach. Iwi have also been involved in litigation challenging the development of a WWTP in Rotomā, which is detailed further in section 5. Both processes are adversarial and have caused relationship issues between mana whenua and Council.

Mana whenua have expressed a strong desire to be involved in every stage of wastewater treatment processes, from consenting and design to planning, construction, and commissioning. While this has generally been the case, Council engagement with mana whenua has in some instances occurred late, or in ways that did not fully incorporate their perspectives. One example provided by mana whenua was Council's use of international consultants who lacked local knowledge and mātauranga, leading to a duplication of efforts as mana whenua insights had to be integrated afterward.[102]

To create more robust processes for mana whenua inclusion in decision-making, two agreements informed by two Cultural Impacts Assessments[103] – for the WWTP site and the Scheme reticulation network – have been established between Ngāti Pikiao and Rotorua Lakes Council (RLC). These include a Memorandum of Understanding with the Ngāti Te Rangiunuora submitters to the Resource Consent, and agreement that Cultural Management will be led by the RRSSC. These mechanisms have been effective in the view of mana whenua.[104]

Other avenues through which mana whenua are involved in the management of the lakes, and through which insights and mātauranga are shared, include:

- **Rotorua Te Arawa Lakes Strategy Group:** a committee that comprises members of the Bay of Plenty Regional Council, Te Arawa Lakes Trust and Rotorua Lakes Council. Its focus is to co-ordinate the management of the Rotorua Lakes and is established in law under the Te Arawa Lakes Settlement Act 2006.[105] This provides for stronger levels of involvement in all decisions relating to Te Arawa Lakes and allows for Te Arawa to set the vision and direction for water management in their rohe.
- **Ngāti Pikiao Cultural Impacts Team:** Established in 2016, and comprising a mix of technical advisors (engineers), cultural and project management roles. This team provides a voice for Ngāti Pikiao to acknowledge and act upon cultural expectations. The cultural impacts team also help ensure the recommendations in the relevant cultural impact assessments are incorporated into the Council's planning, design, construction, and operation of the Scheme.[106]

There have been challenges for all parties as this work has been undertaken. Building a trusted relationship with clear communication, and understanding of shared values and priorities – cultural, environmental, and economic is crucial. Improved engagement with mana whenua has contributed to the development of the East Rotoiti-Rotomā WWTP on land owned by Haumingi 9B3B. During engagement mana whenua positively noted that due to their strong involvement in the development of the WWTP, mana whenua now have an improved relationship with Council and the WWTP

[102] Taumata Arowai, Wastewater Standards – Rotoiti-Rotomā engagement notes, p. 2.

[103] Cultural Audit Impact Assessment Rotorua Lakes District Council Proposed Effluent Waste Disposal Plant and Haumingi 9B3B Ahu Whenua Trust Colleen Skerrett-White and Emily Skerrett.

[104] Taumata Arowai, Wastewater Standards – Rotoiti-Rotomā engagement notes. p. 2.

[105] Rotorua Te Arawa Lakes Strategy Group (boprc.govt.nz)

[106] East Rotoiti and Rotomā sewerage scheme - Rotorua Lakes Council

operators and feel that their tikanga is acknowledged and respected. Mana whenua agreed to the Scheme, and Haumingi 9B3B Trust to the use of their land, to influence the development of the rohe. Integral to this was ensuring that the development aligns with their cultural values and supports future housing growth for the community,[107] and to ensure that any solutions were future proofed to meet both current and future needs of the community and environment.

5. Mana whenua involvement in resource consenting processes and treatment arrangements

5.1 Environment Court hearing

In 2010, the Council applied for a resource consent to build a WWTP in Rotomā. The resource consent was subsequently approved in early 2011. In October 2011, Ngāti Pikiao and Ngāti Makino lodged an appeal with the Environment Court against the Bay of Plenty Regional Council and the Rotorua District Council over the discharge of wastewater, and the location of the WWTP near a site of cultural significance. [108]

Key issues in the appeal included that the resource consent application failed to:

- adequately provide and recognise the relationship of Ngāti Pikiao with their ancestral lands, waters, sites and taonga;
- adequately provide for the kaitiakitanga of Ngāti Pikiao;
- take into account the principles of the Treaty of Waitangi; and
- avoid, remedy, or mitigate the adverse effects of the application on the environment, particularly the adverse effects on Ngāti Pikiao.[109]

In July 2012, the Environment Court decided in favour of Ngāti Pikiao and noted that the Council had failed to engage with iwi on several significant matters. One of these findings was that the Council had not taken appropriate steps to undertake a proper Cultural Impact Assessment (CIA) in agreement with iwi that would have provided information to support good decision-making.[110]

The Court also found that:

> *"Council processes could be described as high-handed... it seems to involve a significant expense for iwi in circumstances where a number of properties, including those at the base of the subject site for the wastewater treatment plant between Rotoiti and Rotomā, were excluded from the reticulated system"* [111]

The Court also raised issues with the Council's resource consent process, in particular, they recommended Council significantly improve their consultation processes.[112]

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[107] Taumata Arowai, Wastewater Standards – Rotoiti-Rotomā engagement notes. p. 1.

[108] Teinakore Curtis. 2015. Shaping a sustainable environment: the challenges facing iwi from water management practices on Lake Rotoiti. p.9.

[109] Wairangi Whata. 2017. An assessment of cultual impacts regarding the proposed east rotoiti - rotomā sewerage scheme. p.1.

[110] Wairangi Whata. 2017. An assessment of cultual impacts regarding the proposed east rotoiti - rotomā sewerage scheme. p.1

[111] Wairangi Whata. 2017. An assessment of cultual impacts regarding the proposed east rotoiti - rotomā sewerage scheme. p.2.

[112] Wairangi Whata. 2017. An assessment of cultual impacts regarding the proposed east rotoiti - rotomā sewerage scheme. p. 2.

In 2013, the Rotorua Lakes Council was ordered to pay $115,000 by the Environmental Court as damages in recognition of the failures in the process by the Council.

5.2 Establishment of the RRSSC

In 2014 the RRSSC was established to help guide the development of wastewater treatment options for Rotoiti-Rotomā. The RRSSC was composed of Council members, Bay of Plenty Regional Council representatives, local councillors, mana whenua representatives from different marae, the Ngāti Pikiao Environmental Society, Te Arawa Lakes Trust, the Ministry of Health, and members of the Rotoiti and Rotomā Ratepayers Association. The mana whenua members of the RRSSC represented Ngāti Tamateatutahi-Ngāti Kawiti, Ngāti Hinekura, Ngāti Te Rangiunuora (all of whom are hapū of Ngāti Pikiao) and the iwi Ngāti Rongomai, Ngāti Mākino and Ngāti Tarāwhai.[113]

During engagement for this case study, mana whenua expressed that despite fair representation in the RRSSC, at times engagement was extremely challenging.[114] Mana whenua felt their involvement to date could have been stronger and they could have had more influence. Some also noted that at times, they were presented with insufficient information. This created tension which negatively impacted the relationship, and mana whenua noted their concerns regarding Council's profit-driven incentives favouring larger centralised systems and the inefficient use of funds. It was noted that during the tendering process for the East Rotoiti-Rotomā WWTP, expensive brand-specific equipment was mandated without added value when compared to similar 'non-brand' pumps available at the time.

The RRSSC looked to include the views of all relevant stakeholders, and each representative group was tasked with reporting back to their members regarding the preferred wastewater treatment options. Public consultations were also held in the Rotoiti-Rotomā area. Mana whenua developed a CIA to support the Council's resource consent application for a reticulated Scheme in East Rotoiti Rotomā lake catchments. The CIA is an important document, because it directly informed the consenting authority's decision on whether to grant or decline the consents. Mana whenua also intended for the CIA to be used as a tool to inform activities over the full lifecycle of the Scheme.

Alongside the RRSSC, a Technical Advisory Group (TAG) was established to manage the technical aspects of the proposed wastewater treatment solutions presented to the RRSSC. The TAG included engineering consultants and water quality scientists who specialise in wastewater treatment and water quality. Their role was to evaluate and recommend the most suitable wastewater treatment solutions for the district to the Regional District Council.

In November 2014, mana whenua put forward their preferred options for the Rotoiti-Rotomā sewerage Scheme to RRSSC. They presented the following conditions:

1. Regardless of the option chosen, mana whenua would submit a CIA to identify potential cultural and health risks and concern;
2. The concerns highlighted in the CIA must be considered and addressed; and
3. Mana whenua would submit a Cultural Management Plan.[115]

[113] Wairangi Whata. 2017. An assessment of cultual impacts regarding the proposed east rotoiti - rotomā sewerage scheme. p.3.
[114] Wairangi Whata. 2017. An assessment of cultual impacts regarding the proposed east rotoiti - rotomā sewerage scheme. p.6.
[115] Wairangi Whata. 2017. An assessment of cultual impacts regarding the proposed east rotoiti - rotomā sewerage scheme. p. 3.

In December 2014, the RRSSC confirmed the preferred sewerage Scheme option and recommendation that was approved by the Council. The Ngāti Pikiao Cultural Impacts Team was subsequently established in 2016, and the current WWTP consent was granted in August 2017.

6. Identification of solutions and uptake of new technologies

The WWTP's use of MBR systems, UV light disinfection, and irrigation into pumice (as noted in section 2) reflects a commitment to modern, effective, and practical treatment methods that both improve wastewater treatment and respect mana whenua values and perspectives.

All properties in Rotomā and Rotoiti are required to have an on-site system that provides a high level of pre-treatment of household wastewater. On-site treatment is a requirement of the Agreement for the Cultural Management of the RRSSC, and a condition in the resource consent. This was agreed through engagement with mana whenua and the Council.

Mana whenua raised concerns about the affordability of certain technologies, advocating instead for more sustainable options like a Biolytix system, which was trialled successfully and adopted in the Rotoiti phase of the Scheme. Mana whenua were able to ensure that their tikanga and mātauranga informed the development of wastewater treatment processes through persistence and ongoing advocacy.

7. Ways that wastewater treatment has given expression to mana whenua values, tikanga and mātauranga

There are a range of different avenues where mana whenua insights and mātauranga have been sought by the Council, including the Rotorua Lakes Strategy Group and the Ngāti Pikiao Cultural Impacts Team. These avenues have varying levels of success and could be improved with better organisation, improved transparency and funding for mana whenua involvement. While there have been times when mana whenua felt their views have not been acted upon, recent years have seen a positive progression towards a more relationship-based approach between mana whenua and Council.

Land was provided by Haumingi 9B3B for the construction of the WWTP. Due to this, mana whenua were able to have more influence in the development and operation of the WWTP. Mana whenua had an expectation that their values were to be respected if the land was going to be used for this purpose. As discussed earlier in this case study, a Cultural Management Plan – Te Heketua ki a Papatūānuku: The pathway of return to Mother Earth was developed for the WWTP and the Scheme to ensure that Ngāti Pikiao mātauranga and tikanga are respected across all activities. Haumingi 9B3B also appointed a cultural advisor, an iwi technical advisor and cultural site monitor to be embedded in the project as a part of the Ngāti Pikiao Cultural Impacts Team. These mechanisms helped to ensure that mana whenua interests and cultural perspectives were adequately provided for.[116]

Mana whenua have also prepared and conduct the cultural health and safety induction with all contractors, workers and visitors to the WWTP and the reticulation network, to ensure that they know and grow to understand the history and significance of the whenua and the moana; that mana whenua cultural connections, values, protocols, and aspirations regarding the[117] health and wellbeing of the lakes are of fundamental importance to mana whenua and their identity as Ngāti Pikiao, and Te

[116] Wairangi Whata. 2017. An assessment of cultual impacts regarding the proposed east rotoiti - rotomā sewerage scheme. p. 14.

[117] Wairangi Whata. 2017. An assessment of cultual impacts regarding the proposed east rotoiti - rotomā sewerage scheme. p. 14.

Arawa. As such, mana whenua have been proactive with their involvement in wastewater management and have strongly advocated to prioritise the health of the environment.

8. Summary of key insights

8.1 Successful Elements

- Mana whenua involvement in decision-making and implementation at the local level is critical to informing the appropriate wastewater standards from a cultural values and tikanga perspective. The Scheme culminated in a wastewater treatment arrangement that reflects local mātauranga and cultural needs.
- Using tools such as a CIA helped mana whenua to communicate their identity, values, rights, and interests and establish acceptable engagement mechanisms. This provided important information to inform council and Ngāti Pikiao Cultural Impacts Team decision-making for key aspects of the Scheme.
- Mana whenua provided the land that the WWTP was constructed on. While these are unique circumstances, this supported mana whenua to have greater involvement in the resource consenting process and within the broader Scheme.
- Proactive risk management measures by mana whenua to relocate wastewater piping away from the lake side of the road has successfully reduced the potential negative impact of subsequent landslips.

8.2 Opportunities to improve

- Mana whenua appealed the resource consent in the Environment Court. There is room for ongoing improvement of council and mana whenua engagement, to avoid litigation which is adversarial and costly.
- Mana whenua were sometimes not provided with adequate information during their engagement with Council. This caused tension and distrust which negatively impacted the relationship between mana whenua and Council. Having access to information is critical to enable mana whenua to understand the technical analysis relevant to decisions, and to participate on an equal footing.
- While mana whenua support the high quality of the Rotoiti WWTP, they held concerns about Council decisions and delayed processes which led to unnecessary costs without consideration of alternatives (for example using STEP on-site systems as opposed to Biolytix in Rotomā). These types of decisions have increased the overall costs borne to ratepayers under the Capital Repayment Scheme. Mana whenua encouraged greater Council transparency over their decision-making so that the wider community understood where unanticipated cost increases came from.
- A more robust evaluation of the trial results for the Biolytix system was needed before deciding to implement the STEP systems, which were less favoured by mana whenua.

8.3 Key themes

- Whānau have high expectations that local tikanga and mātauranga must be adhered to and respected to protect the health and wellbeing of the lakes, environment, and broader community.
- Direct mana whenua involvement in all processes involving them is critical, and a key whakaaro regarding the involvement of mana whenua in wastewater treatment arrangements is that *'absolutely nothing about us should happen without us'*.[3.]

- Experts in mātauranga Māori need to be held in the same regard as Council technical experts (e.g. engineers). Until that occurs, the presence of iwi engineers and culturally informed technical experts is vital to this process.
- Mana whenua are pragmatic and will find solutions if the relationships are strong and engagement is meaningful.
- Mana whenua need to be recognised as experts in their own right, while also benefitting from technical experts that they trust and respect to inform their insights and perspectives.

In summary, this case study demonstrates that strong and enduring partnerships with mana whenua, and their involvement in the identification of options and development of the Scheme not only supports better alignment with tikanga, mātauranga and Māori values, but ultimately improves environmental outcomes for all.

Case Study: Taipā Wastewater Treatment Plant

1. Introduction

The Taipā Wastewater Treatment Plant (WWTP) case study details the experiences of Ngāti Kahu hapū and how wastewater treatment arrangements can give effect to the aspirations of mana whenua. This case study provides a high-level overview of key facts relating to the WWTP, as well as a brief history of mana whenua perspectives and engagement regarding the wastewater treatment processes.

Outlined in this case study are:

- The involvement of mana whenua in the recent resource consent renewal and upgrade processes for the WWTP, from litigation in the Environment Court to working alongside council and the community as part of a Working Group for the WWTP upgrade project;
- Details regarding how mana whenua successfully helped co-design a new land-based wastewater discharge solution, shifting away from discharge to water by adopting new technology informed by local mātauranga and western science; and
- Key challenges faced by mana whenua and success factors during the consenting and design process.

The insights in this case study were informed by an engagement hui with Ngāti Kahu hapū; Matakairiri, Ngāti Tara and Ngāti Whata representatives.

2. Background

The Taipā WWTP is in the Far North District, within the takiwā (territory) of Ngāti Kahu. The WWTP was commissioned in 1960 and treats wastewater from Coopers Beach, Mangonui, Taipā and Cable Bay in the Doubtless Bay area. The Far North District Council (FNDC) operates the WWTP and Northland Regional Council (NRC) is the consenting authority. Since 1985, the WWTP has operated under a resource consent that permitted discharge of treated wastewater into the Parapara stream.[118]

The resource consent came up for renewal in 2008. FNDC applied to renew the resource consent in 2010 and publicly notified the resource consent application, however Ngāti Kahu and other members of the community opposed the application. FNDC subsequently paused the application to resolve the

[118] The Environmental Court. 2021. Consent Order ENV-2019-AKL-181. p. 7.

concerns that had been raised, and the application remained on hold until 2019, at which point an eight-year resource consent was issued. [119] Hapū representatives appealed the resource consent in the Environment Court on the grounds that the discharge parameters were not sufficient to prevent environmental degradation. The Environment Court issued a consent order with several conditions that set requirements for the WWTP upgrade.[120] This process is outlined in more detail in section 5.

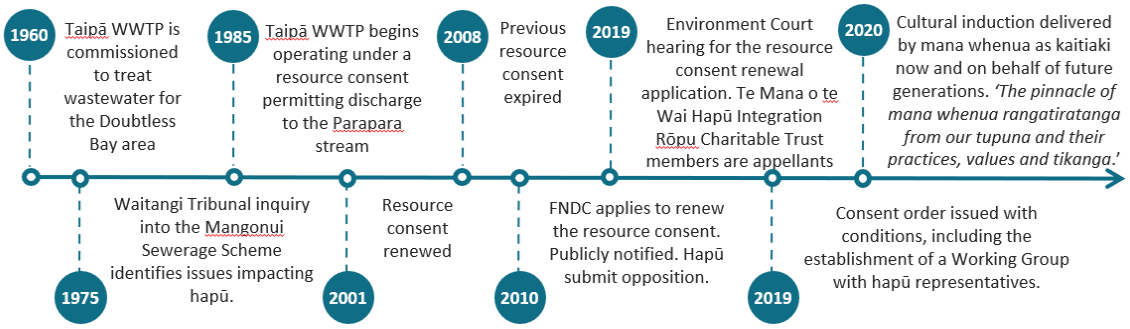
The Taipā WWTP currently uses a pond and wetland system to treat wastewater. Treated wastewater is discharged into the Parapara stream, which then joins the Awapoko River and flows out to sea at Aurere Beach.

Wastewater is treated through a series of three lagoons that mechanically aerate and break down some organic matter. Further treatment occurs in the maturation ponds where with the help of sunlight algae absorbs some nutrients and microbes consume organic matter. The wastewater is then pumped into a constructed wetland to settle suspended solids and absorb nutrients.[121]

Figure 1. Taipā WWTP (image owned by Far North District Council)

In alignment with local tikanga and mātauranga, mana whenua strongly prefer a land-based discharge solution as opposed to the existing discharge to water system. Through the working group, mana whenua has worked closely with FNDC and the community to co-design a new wastewater treatment solution which discharges to land, as an upgrade to the Taipā WWTP. A one-year trial of Electro-Coagulation (EC) technology will begin in late 2024 to support this land discharge approach.

Overview of Taipā WWTP history



3. History of mana whenua involvement with wastewater management

Ngāti Kahu hapū have opposed the discharge of wastewater into the Parapara Stream for over 30 years. In 1975, the Waitangi Tribunal held an inquiry into the Mangonui Sewerage Scheme and identified several issues impacting mana whenua. The issues identified by the 1988 WAI17 report included the location of the WWTP being in a culturally significant area, the negative effects of

[119] The Environmental Court. 2021. Consent Order ENV-2019-AKL-181. p. 19.

[120] The Environmental Court. 2021. Consent Order ENV-2019-AKL-181. p. 6.

[121] Taipā Wastewater Treatment Plant | Far North District Council (fndc.govt.nz)

discharging treated wastewater into the Parapara stream, and the rights of mana whenua under Te Tiriti o Waitangi not being upheld.[122]

In 2007, an environmental officer from Te Rūnanga-ā-Iwi o Ngāti Kahu called a meeting to discuss how hapū could better impact FNDC processes. This meeting was a catalyst for bringing hapū together to discuss how they could work together and address some of the challenges they collectively faced. Mana whenua had recently been involved in the Taipā bridge rebuild project and from this experience of effective engagement with Waka Kōtahi (NZTA), stated that a Cultural Impact Assessment (CIA) was a useful and necessary tool for a trusting working relationship with FNDC.[123]

In 2008, FNDC sought to renew the resource consent for the WWTP. In 2010, mana whenua submitted a response with their concerns, highlighting discomfort with the plant's discharge parameters. This led to a lengthy delay in the consenting application as engagement and further discussion was undertaken.

In 2017, Mana whenua and an independent wastewater expert documented major issues with the operation of the WWTP including insufficient aeration of the oxidation ponds, and old sludge in the maturation pond requiring urgent removal. The constructed wetlands had not been maintained properly and were overloaded with nutrients. Mana whenua documented these issues and produced a documentary to share with the community which triggered wider conversations regarding next steps.

Mana whenua discussed through engagements how the Council continued to seek resource consent renewals despite the WWTP capacity being limited. Mana whenua also outlined the steps they took to come up with solutions that aligned to the outcomes they were seeking. This included establishing the Te Mana o te Wai Hapū Integration Rōpu Charitable Trust to oversee the work and to seek funding to support mana whenua solutions. Despite being unpaid and voluntary, mana whenua worked hard to identify solutions given their passion.[124]

In 2019, following this work, mana whenua appealed the consent renewal application in the Environment Court, advocating for stricter discharge parameters to protect the environment. The court mandated cultural training for staff and made a consent order with conditions such as the formation of a working group. The working group includes FNDC staff, mana whenua representatives, a technical advisor, and community members. [125] As part of the consent order, mana whenua also conducted a cultural induction at the beginning of the upgrade project to educate staff on key cultural protocols and processes.

In 2020, a cultural induction which was held over two days at Taipā/Karepori marae attended by NRC, FNDC, commissioners, planners, Community Environmental Roopu - Clean Waters 2 the Sea, hapū/whānau, and Te Rūnanga-ā-Iwi o Ngāti Kahu. For hapū and community in Doubtless Bay, the induction provides an opportunity for mana whenua to share their narrative, and the values, and principles that have been impacted by the wastewater discharge to their awa. The induction included:

- Ngāti Kahu te Iwi and ngā hapū gave in-depth whakapapa kōrero – sharing the narrative of the tūpuna who passed down mātauranga practices to ensure the mauri of the wai would be protected.

[122] Waitangi Tribunal.1988. Mangonui Sewerage Report. p. 10.

[123] Taumata Arowai, Wastewater Standards – Taipā engagement notes. p. 3.

[124] Taumata Arowai, Wastewater Standards – Taipā engagement notes, p. 2.

[125] The Environmental Court. 2021. Consent Order ENV-2019-AKL-181. p. 20.

- To support greater understanding for participants, Ngāti Tara hapū, also shared their CIA which included their narrative and recommendation to take the discharge out of the water.
- A hikoi around the impacted whenua and the tributaries of the wai and awa where the discharge effected the quality of the wai, unbalancing the mauri for generations of hapū/whanau; and
- Discussion around practices impacted by the discharge to the awa such as traditional practice of cleansing/washing of moko kauwae (traditional tattoo) in the awa has been tarnished due to years of high nutrient levels in the discharge contaminating the wai.

Figure 2. Aurere, once a sandy beach now mud-flats.

Figure 3. Ruminants of how bountiful kaimoana was now a urupa of the nonexistent eco-system.

At the conclusion of the cultural induction the Far North Mayor, the CEO from FNDC, and an NRC policy representative began a more meaningful upgrade process with clear hapū involvement, supported by iwi, hapū, community, wastewater experts, and FNDC representatives which lead to the establishment of the working group. Mana whenua expressed that holding a cultural induction was important to build relationships with FNDC staff.

3.1 Cultural Impact Assessment report (CIA)

Matakairiri hapū prepared a CIA to guide the Taipā WWTP upgrade project. The purpose of the CIA was to support FNDC regarding statutory requirements that must be considered by consenting authorities, to establish a terms of agreement in accordance with Matakairiri protocols and processes, and to create a foundation to build a relationship between Matakairiri and FNDC.[126] Following this experience, Matakariri has continuously used a CIA when engaging with council, government and corporate agencies on different projects.

Mana whenua have partnered with government agencies, like the Department of Conservation to undertake restoration activities to restore the mauri of the waterways. Restoration activities include inanga spawning and native tree planting.

4. Mana whenua perspectives on the impact of wastewater discharge in their takiwā

For mana whenua, the health and wellbeing of their waterways has always been intrinsic to their way of life. Mana whenua are unequivocally opposed to the further pollution of their waterways caused by high nutrient levels from wastewater discharge.

[126] Trudy Allen. 2019. Cultural Impact Assessment Matakairiri. p. 11.

The Parapara Stream, its tributaries and Tokerau Moana were once abundant with life and were a critical food source for mana whenua.[127] At present, food from the river and ocean is often unsafe for consumption and rāhui (customary prohibition on activity) are frequently implemented to protect human health. Mana whenua also raised during engagement that not being able to use their waterways impacts their ability to teach and transfer local knowledge about the environment and to act as kaitiaki. Mana whenua aspirations centre around restoring the mauri (life essence) of their waterways and removing all the pollution.

Mana whenua also stated during engagement that the mauri of their rivers and ocean is suffering from the adverse effects of the WWTP. These adverse effects are caused by poor maintenance, a lack of investment in required upgrades and a lack of compliance standards that align with population growth or infrastructure needs.[128]

There are high algae levels which are contaminating the freshwater and marine environment and causing harm to aquatic life (including killing eel populations). The algae build-up is attributed to insufficient aeration occurring in the oxidation ponds, old sludge not being removed in the maturation pond and the wetlands not being maintained properly.[129] Wet weather washes out the microbes (that use biological processes to treat the wastewater) and therefore reduces their cleaning effect leading to lower levels of wastewater treatment for water that eventually discharges into freshwater. It can take weeks for microbe levels to recover after a wet weather event. Tourism in summer increases the treatment loads and puts additional pressure on the WWTP. Algal blooms are therefore prominent in the summer months and contribute to high levels of phosphate that harm marine life and require the implementation of rāhui to safeguard human health.

Figure 4. Algal blooms in the constructed wetland in 2017 (image supplied by Andreas Kurmann)

Reducing pollution to Tokerau Moana requires a holistic approach to co-ordinate efforts from all discharge points. The Taipā WWTP is one of two in the wider Doubtless Bay network and the challenges faced are interconnected across the network. There are other discharge sources along the river and streams (e.g. from farm run-off) that contribute to environmental degradation. Mana whenua stressed that broader community involvement with all those that live along the river is critical to create action that protects the environment.

5. Mana whenua involvement in resource consenting processes and treatment arrangements

FNDC applied to renew the resource consent for Taipa WWTP in 2010. Mana whenua submitted in opposition to the resource consent as they viewed that the environmental standards were not strong enough to prevent continued environmental degradation and pollution. A total of 50 submissions

[127] Trudy Allen. 2019. Matakairiri Cultural Impact Assessment. p. 18.

[128] Taumata Arowai, Wastewater Standards – Taipā engagement notes. p. 4.

[129] Taumata Arowai, Wastewater Standards – Taipā engagement notes. p. 4.

were received in relation to the resource consent renewal application, all but three opposed the application.[130] FNDC requested that the application be put on hold to allow for the Council to respond to the issues and concerned by submitted, in particular Ngāti Kahu hapū.

5.1 Environment Court hearing

In 2019, an Environment Court hearing was held for the resource consent renewal application. Members from the Te Mana o te Wai Hapū Integration Rōpu Charitable Trust successfully appealed the decision in the Environment court.

A consent order was issued in March 2021 stipulating several important resource consent conditions:

- **Condition 7:** The consent holder must establish a Working Group made up of three hapū representatives from Matakairiri, Ngāti Tara and Ngāti Whata (appointed by mana whenua) and one community representative (appointed by the Te Mana o te Wai Hapū Integration Rōpu Charitable Trust), two senior representatives (appointed by FNDC) and an independent wastewater expert. Ngāti Kahu submitters expressed their interest in ensuring that hapū representatives were part of The Working Group to ensure appropriate levels of participation in the upgrade process, and to reflect tangata whenua relationships in the area.[131]
- **Condition 10:** FNDC must produce a report to NRC that assesses wastewater treatment disposal options and makes a recommendation as to which option is the Best Practicable Option (BPO). The Working Group must be involved in determining the BPO.[132]

The Consent Order required that if the BPO recommends a land-based discharge option, then that recommended option must be implemented by 2027. However, if the working group do not recommend the BPO is discharge to land. then the WWTP must be upgraded to achieve the specified discharge standards outlined in the consent.[133]

The Environment Court process was important to ensure that mana whenua were appropriately involved in the WWTP upgrade process, and to set clear requirements that needed to be followed by the council.

5.2 Establishment of The Working Group

The Working Group was established as an avenue for greater involvement of Ngāti Kahu hapū in the Taipā WWTP upgrade project. The purpose of The Working Group was for representatives to inform decision-making for the upgrade, and to promote the wellbeing of mana whenua and the broader community by bringing back the mauri to the wai. The Working Group was seen by mana whenua as a positive development given the history of low consultation and engagement from council.

As per the Consent Order, the Working Group was to be involved in the scoping of the Quantitative Microbial Risk Assessment (QMRA), the assessment of disposal options, in making a recommendation on the BPO, and the analysis any WWTP upgrade options (if required).[134] The judge also ordered a cultural induction take place to educate council officials about who mana whenua are, and their ongoing relationships with the area.

The Working Group undertook the following process:

[130] Media releases - Northland Regional Council - Taipa wastewater consents granted - (nrc.govt.nz)

[131] The Environmental Court. 2021. Consent Order ENV-2019-AKL-181. Condition 7. p. 9.

[132] The Environmental Court. 2021. Consent Order ENV-2019-AKL-181. Condition 8. p. 9.

[133] The Environmental Court. 2021. Consent Order ENV-2019-AKL-181. Condition 13. p.10.

[134] The Environmental Court. 2021. Consent Order ENV-2019-AKL-181. Condition 5. p. 8.

- Established a Terms of Reference between Matakairiri and FNDC.
- Engagement to identify discharge options to upgrade or replace the WWTP system, and identification of a possible land discharge point.
- Wider community engagement and education.
- Assessment of discharge options.
- Obtained resource consents for the Taipā WWTP.
- Implement the BPO.

While there is plenty more work to be done, the Working Group enabled the development of an effective co-design solution, which represents positive progress forward. Mana whenua representatives enlisted an independent wastewater expert (also described as a hapū scientist) to provide them with scientific analysis and technical guidance throughout the process. Mana whenua highlighted that the independent expert helped hapū members to understand the science, which was critical to enable mana whenua engagement with Council on the Working Group.

The Working Group recommended a BPO for land discharge. Through the co-development of new solutions by the Working Group, the WWTP will transition to discharge to land using slow-rate irrigation and EC technology. A one-year trial will start in late 2024. Mana whenua highlighted the importance of having support when voting for the BPO, and the importance of drawing from both science and mātauranga.

6. Identification of solutions and uptake of new technologies

Enhanced Electrocoagulation (EC) refers to the removal of water-soluble particles from wastewater adding coagulating ions such as (i.e. alum or ferric chloride). When these are mixed in the wastewater, they form aluminium or ferric ions. These carry a positive charge. Water soluble nutrients carry a negative charge which is neutralised by the positive ions. This causes the particles to clump together and form a sludge. Removing this sludge cleans the water for discharge. [135] The Taipā WWTP trial uses a combination of electrolysis, enhanced coagulation and sedimentation/clarification. Settlement removal rates of over 90% were reported in the 2018 EC trials on algae pond effluent report by NIWA.[136] EC technology was first used in 1889 in London, and currently used across the world.

There are other EC systems in Northland including at Kerikeri, Kohukohu and Mangonui. All of these EC units have produced successful results which provides useful data to support its use for the Taipā WWTP. Mana whenua noted some reservations from FNDC toward the EC technology as there was limited New Zealand based peer review data to support the use of the technology.

Some potential benefits of EC technology include lower capital and operational costs, lower energy usage, minimal maintenance requirements (can be run remotely) and sludge minimisation. Clarifier tanks and screw presses will collect sludge and remove it from treated wastewater.EC technology will enable discharge to land without run-off affecting the Parapara Stream (wastewater sits at the subsoil layer and only rainwater runs off the topsoil during wet weather). The shift to land-based discharge will make the current use of the wetlands redundant. If required, the wetlands can be used as a natural filter for any overflows or seepage that occur. This technology avoids pollution, sequesters, avoids further land erosion and creates a bio-solid product that could potentially be re-used or sold which contributes to a circular economy. EC technology can be applied and used across the country as a land-based wastewater discharge solution.

[135] Beca Limited. 2020. Electrocoagulation Wastewater Treatment. p. 2.

[136] Beca Limited. 2020. Electrocoagulation Wastewater Treatment. p. 5.

7. Ways that wastewater treatment has given expression to mana whenua values, tikanga and mātauranga

Throughout this case study, there are a number of approaches that supported mana whenua involvement in wastewater treatment and the safeguarding of their values, tikanga and mātauranga. For instance, some examples include:

- **The Working Group:** The establishment of the Working Group provided a structured platform for mana whenua to participate meaningfully in the WWTP upgrade process. This group helped determine best practicable option for wastewater treatment disposal, which was a positive step towards incorporating mana whenua perspectives and providing space for their values, concerns and aspirations.
- **Cultural Impact Assessment:** The development of a CIA was instrumental in educating the Far North District Council about mana whenua identity and establishing terms of agreement that respected Matakairiri protocols.
- **Mandatory Cultural Inductions:** These ordered inductions helped educate Council officials about who mana whenua are, and their ongoing relationships with the environment. This approach can help all parties get a shared understanding of mana whenua perspectives, and help non-Māori understand the deep, intrinsic connection they have with the environment.

Mana whenua highlighted that working with the hapū scientist also enabled them to work closely together to integrate both mātauranga and science into their advice. Mana whenua explained that from their perspective, 'science provides the parameters and mātauranga provides the rationale behind decisions'.[137]

8. Summary of key insights

8.1. Successful elements

- The co-design process resulted in a holistic solution that included a range of different expertise including mātauranga and western science. Mana whenua would like to share this experience with others to help educate and provide a useful example to follow.
- Using planning tools such as a CIA helped mana whenua to express their identity, values, rights and interests and establish acceptable engagement mechanisms.
- Mana whenua invited a wastewater expert (also referred to as a hapū scientist) to support them with their engagement in the resource consent process and the working group. Access to independent technical advice was critical to assist mana whenua when engaging with council to provide equal access to information. This approach allowed mana whenua to draw on knowledge from both mātauranga and western science to strengthen the assessment of options and recommendations.
- The Working Group was a useful avenue to support better involvement of mana whenua in the Taipā WWTP upgrade process.
- Mana whenua were able to work alongside FNDC and other community members to identify and co-design a successful land-discharge BPO for the Taipā WWTP. This BPO will be trialled for one-year in late 2024. Mana whenua saw the benefit of working closely with council to achieve shared purposes and stronger outcomes for people and the environment.

[137] Taumata Arowai, Wastewater Standards – Taipā engagement notes. p. 5.

8.2. Opportunities to improve

- Mana whenua feel there is a high turnover rate of council staff which makes it difficult to build long-term and meaningful relationships. Mana whenua remain a consistent voice and presence but have to repeat their kōrero due to this 'revolving door' of council staff.
- Council would often engage with mana whenua and the community separately. However, mana whenua representatives shared in engagement interviews that they'd rather work together with everyone at the same time, preferring a holistic approach to engagement.
- The Environment Court Order provided a strong basis for mana whenua involvement in the WWTP upgrade project by establishing the Working Group. While the court order supported a better engagement process, it would be an improvement if strong engagement was general practice without the need for court intervention and the associated costs.
- Further community education is important so that everyone understands the impact and importance of appropriate wastewater management.

8.3. Key themes

- Strong involvement from mana whenua across the whole lifecycle process of the WWTP upgrade from infancy to monitoring, is beneficial for the entire community, for ngā tāngata katoa (all people), for te Taiao (the environment) and for Aotearoa New Zealand.
- Challenges with WWTPs are interconnected across the network. There are three WWTPs in the Doubtless Bay area that pollute Tokerau Moana. Reducing pollution requires action with all WWTPs on the network. There are other pollution source points that needs to be addressed in order to achieve better environmental outcomes. Efforts need to be co-ordinated across the community and a holistic approach is required.
- Mana whenua advocated for greater community representation in engagement. It was important to ensure community representatives were at the table when discussing the WWTP upgrade project to align views, work together collaboratively towards solutions, and to highlight the importance of cultural practices and western science working in tandem.
- Mana whenua expect a high standard of treatment for discharge to water. While discharge to land is considered more acceptable from a cultural perspective and is reinforced through soil investigation, it is considered that the standard of treatment should be just as high for discharge to land. It is ngā hapū o Ngāti Kahu aspirations and recommendation for all WWTPs in Aotearoa to opt to land discharge.
- Having mana whenua involved in monitoring and reporting is beneficial to creating employment and building capacity and capability, that hapū consider should be undertaken independently from Council. Others such as FNDC and the wastewater experts are witnessing the benefits from hapū taking rangatiratanga in their rohe.

In summary, this case study demonstrates how involvement of mana whenua in the identification and planning of options for wastewater treatment can result improved practices and standards that better align with Māori values and improve environmental outcomes for all.

Appendix B: Glossary

The table below sets out a list of Māori words and phrases used in this report and their commonly understood meaning.

Term	Definition of term
Aotearoa	New Zealand
Atua	God, deity
Hapū	Subtribe or clan
Iwi	Tribe or people
Kai	Food
Kaitiaki	Guardian, often refers to individuals or groups that are guardians of a particular area or resource
Kaitiakitanga	Guardianship, stewardship, or trusteeship
Mahinga kai	Activities relating to food (preparing, growing harvesting, etc…)
Mana whakahaere	Governing authority
Mana whenua	Local people, local tribe or subtribe. Refers to Māori who have customary authority over a particular area.
Mātauranga Māori	Māori knowledge, wisdom, understanding
Mauri	Life force or essence
Noa	Free from tapu, ordinary, unrestricted
Papatūānuku (Papa)	The earth mother, a deity in Te ao Māori
Rāhui	A temporary prohibition, ban or restriction placed on an area or resource
Ranginui (Rangi)	The sky father, a deity in Te ao Māori
Rohe	Region
Taonga	Treasure, anything highly prized
Tapu	Sacred, prohibited, restricted, set apart
Te ao Māori	Māori worldview, encompassing Māori culture, practices, and beliefs
Te Awa Tupua	The Whanganui River personhood
Te taiao	The natural environment
Te Tiriti	Te Tiriti o Waitangi, the Treaty of Waitangi
Te Ture Whaimana	The Vision and Strategy for the Waikato River

Term	Definition of term
Tikanga	Correct procedure, custom, habit, lore, convention, protocol – the customary system of values and practices that have developed over time and are deeply embedded
Tino rangatiratanga	Absolute sovereignty, self-determination, autonomy, self-government
Wai	Water
Wairua	Spirit, soul
Waahi tapu	Sacred place(s)
Whakanoa	Process of removing restrictions / tapu
Whakapapa	Genealogy, lineage, descent

Appendix C: Resource Management Act 1991

The table below sets out key provisions of the RMA that provide for, or are relevant to, the rights and interests of Māori. Note that the Government has recently proposed changes related to the future of the RMA – refer to RMA Reform Phase Three fact sheet.pdf for more information.

Section		Detail
5	**Purpose**	Management of stormwater and wastewater must be sustainable, safeguard the "life-supporting capacity of air, water, soil and ecosystems", and avoid, remedy, or mitigate any adverse effects on the environment.
6	**Matters of national importance**	Relevant matters of national importance to be recognised and provided for include preservation of natural character of water bodies, the relationship of Māori with their "ancestral lands, water, sites, waahi tapu and other taonga", and the management of significant natural hazard risks.
8	**Treaty of Waitangi**	The principles of Te Tiriti o Waitangi must be taken into account when exercising the functions and powers in the RMA.
14	**Restrictions relating to water**	This section relates to the take, use, damming or diversion of water (in most cases these activities must be expressly allowed by a standard, rule, or consent). Stormwater can be treated as a diversion as well as a discharge.
15	**Discharges of contaminants into environment**	The RMA prevents contaminant discharge into water, onto land, or into air, unless expressly allowed by a rule in a regional plan, a resource consent, or other regulations. Resource consent is required for the majority of municipal stormwater and wastewater discharges.
35	**Duty to gather information, monitor, keep records**	Local authorities are required to monitor the state of the environment in their district or region as well as the efficiency and effectiveness of stormwater and wastewater policies and rules in their plans.
70	**Rules about discharges**	To include permitted activity discharge rules in plans, a regional council must be satisfied that the following adverse effects will not arise in receiving waters, after reasonable mixing, as a result of the discharge: • The production of conspicuous oil or grease films, scums, or foams, or floatable or suspended materials • Any conspicuous change in the colour or visual clarity • Any emission of objectionable odour • The rendering of fresh water unsuitable for consumption by farm animals • Any significant adverse effects on aquatic life. The principle of 'after reasonable mixing' means that effects of the discharge on the receiving environment is measured downstream of the point source after reasonable mixing. The mixing zone is determined by the results of environmental testing and different regional councils have developed their own definitions of reasonable mixing for various pollutants. To include rules in regional plans requiring the adoption of the "best practicable option" (BPO), the regional council must be satisfied that this is the most effective and efficient way of preventing or minimising adverse environmental effects when considering: • The nature of the discharge and the receiving environment, and

Section		Detail
		• Other alternatives, including a rule requiring the observance of minimum standards of quality of the environment. Establishing discharge locations for municipal wastewater or stormwater discharges is often done using a best practicable option approach.
104	**Consideration of applications**	When considering resource consent applications, the consent authority must have regard to: • Any actual and potential adverse effects on the environment • Proposed offset measures • Relevant provisions of national environmental standards, other regulations, national policy statements, coastal policy statements, regional policy statements and plans. Additionally, when considering applications relating to wastewater networks, a consent authority must not grant consent contrary to wastewater environmental performance standards made under the *Water Services Act 2021.*
105	**Matters relevant to certain applications**	If a discharge permit application contravenes Section 15 of the RMA, the consent authority must also have regard to the following matters: • The nature of the discharge and the sensitivity of the receiving environment to adverse effects; and • The applicant's reasons for the proposed choice; and • Any possible alternative methods of discharge, including discharge into any other receiving environment.
107	**Restriction on grant of certain discharge permits**	Consent authorities cannot grant discharge permits that would otherwise contravene Section 15 of the RMA if after reasonable mixing the discharge is likely to give rise to the adverse effects listed in Section 70(1), unless it is satisfied that: • That exceptional circumstances justify the granting of the permit; or • That the discharge is of a temporary nature; or • That the discharge is associated with necessary maintenance work.

Appendix D: National Policy Statement – Freshwater Management 2020

The table below sets out key provisions of the NPS-FM that provide for, or are relevant to, the rights and interests of Māori.

Policy		Detail
3.2.1	**Definitions related to wetlands and rivers**	**Loss of value**, in relation to natural inland wetland or river, means the wetland or river is less able to provide for values including ecosystem health, indigenous biodiversity, hydrological functioning, Māori freshwater values, amenity values.
3.2.4	**Rivers**	Provides for a precautionary approach to activities with uncertain, unknown, or little understood effects but potentially significant adverse impacts on the coastal environment. This includes a monitoring plan and relates to the consent for making changes or development on the area.

Appendix E: Local Government Water Services Bill

The table below includes an overview of the key changes proposed by the above Bill. The wastewater standards will be made by Order in Council, with final decision-making sitting with Cabinet. Exceptions will be considered prior to the wastewater standards being set.

Proposed change	Detail
New delivery models for water services	The Bill will provide an expanded range of water services delivery models for councils to choose from. This includes new water organisations that can be owned by councils and/or consumer trusts. These organisations are intended to have the flexibility to be financially independent from their council owners from a credit rating perspective. Councils may design their own alternative arrangements, as long as the arrangements meet the minimum requirements set out below.
Clear minimum requirements for water service providers	Regardless of the model chosen, all local government water service providers will have to meet clear minimum requirements set out in legislation. This includes meeting regulatory standards, financial sustainability requirements such as ringfencing of water services, restrictions against privatisation and additional requirements to ensure water organisations are operated and governed effectively.
Planning and accountability for local government water services	The Government is proposing a new planning and accountability framework for water services, which will help to improve transparency and accountability and support an enhanced focus on water services.
New financing options for councils	The New Zealand Local Government Funding Agency (LGFA) Limited has confirmed that it will provide financing to support water council-controlled organisations (CCOs) established under Local Water Done Well and look to assist high growth councils with additional financing. LGFA is also reviewing how it might further support councils to respond to future challenges faced by the sector.
A new approach for managing urban stormwater	Councils will retain legal responsibility and control of stormwater services but will have flexibility to choose the arrangements that best suit their circumstances. Changes are proposed to improve the management of overland flow paths and watercourses in urban areas (an urban area's natural drainage system) by clarifying council and private landowner roles and responsibilities, enabling new planning and regulatory tools, and enabling 'service agreements' to support the integrated management of stormwater networks.
New mechanisms for the Minister of Local Government to address problems facing local government water service providers	There will be new mechanisms for the Minister of Local Government to address issues with local government water service providers. The Minister will be able to appoint a Crown facilitator if problems (or potential problems) arise in councils or water organisations, to identify and implement solutions. The legislation will also enable the Minister of Local Government's powers to be used to help address significant or persistent non-compliance with the economic regulation regime (detailed below). This would be a last-resort option, in situations where the regulatory tools available to the Commerce Commission are insufficient or high cost, and alternative options are required.

Proposed change	Detail
New economic regulation regime	There will be a new economic regulation regime for local government water service providers, implemented by the Commerce Commission. The Commerce Commission will have a range of regulatory tools, including mandatory information disclosure, to promote efficient practices and protections for consumers. The regime will ensure that revenue collected by local government water service providers through rates or water charges is invested back into water infrastructure as needed.
Changing how Taumata Arowai operates	The Government is proposing changes to how Taumata Arowai regulates drinking water suppliers. The changes will remove barriers to Taumata Arowai taking a proportionate, cost effective and efficient approach in its functions and duties, thereby reducing the financial burden on both councils and consumers.
The Water Services Authority – Taumata Arowai	In line with the Government's intention that government agencies have an English name first, the Government is also proposing to amend the legislation to refer to the 'Water Services Authority – Taumata Arowai'.
Reducing the regulatory burden for drinking water suppliers	The Government is proposing several changes to the drinking water quality regulatory regime to reduce the burden and costs of complying with regulation for drinking water suppliers, particularly small, low-risk suppliers.
Change in approach to Te Mana o te Wai	The Government is proposing to repeal the requirements in water services legislation to give effect to Te Mana o te Wai. It is also proposing to require Taumata Arowai to take account of the National Policy Statement for Freshwater Management, and any regional plans prepared under the Resource Management Act that relate to freshwater, as part of the exercise of its functions, duties and powers.
A new approach to wastewater standards	The Government is proposing changes relating to the wastewater environmental performance standards that are being developed by Taumata Arowai under the Water Services Act. The legislation will be amended so there will be a single standard, rather than a minimum or maximum. These amendments are intended to enable a consistent approach for consenting the discharge of wastewater from treatment plants.

Appendix F: Resource Management (Freshwater and Other Matters) Amendment Act 2024

The table below includes an overview of the key changes introduced by this legislation.

Proposed change	Detail
Introduction of National Direction	Introduces the concept of "national direction," a collective framework for national environmental standards, national planning standards, national policy statements, and the New Zealand coastal policy statement.
Evaluation of Proposals	Amends the requirements for preparing and publishing evaluation reports, particularly distinguishing between proposals that are national directions and those that are not. It introduces a new section 32AB specifically for the evaluation of national directions.
Amendments to National Policy Statements	Allows for the review, change, or revocation of national policy statements following a specified process and introduces conditions under which the Minister may amend these statements without following the usual process.
Excluding Te Mana o Te Wai hierarchy of obligations in the NPS-FM from resource consenting	Specifies that consent authorities must not request further information or consider certain clauses of the NPS-FM when processing resource consent applications. The Bill states that consent authorities are not allowed to request further information or commission a report on certain clauses of the NPS-FM 2020. Specifically, it mentions clause 1.3(5) or 2.1, which relate to Te Mana o te Wai hierarchy of obligations.
Repeals and Amendments	Repeals several sections of the Resource Management Act 1991 and amends others to align with the new provisions introduced by the amendment act.

Appendix G: Mātauranga Māori Monitoring and Reporting Frameworks

The table below sets out a brief overview of a selection of Mātauranga Māori Monitoring and Reporting Frameworks.

Example	Description
Mauri compass[138]	The compass assesses 12 aspects of a water body, ranging across three kete: the Tangata Whenua Kete, the Tāne Kete, and the Tangaroa Kete. Tangata whenua aspects are assessed in the first four attributes: Tangata Whenua, Tikanga, Wairua, and Mahinga Kai. Values are assessed by the tangata whenua of each iwi or hapū area using narrative questions. Tangata whenua cultural knowledge and data is safeguarded throughout the process. The next four attributes, in the Tāne Kete, are environmental – Habitat, Biodiversity, Biohazards and Chemical Hazards. The final four attributes, from the Tangaroa Kete, assess the quality and quantity of fish species – these attributes are Fish species, Abundance, Fish Health and Growth Rates.
Cultural Health Index[139]	Assesses water quality and the experiences of iwi and hapū, providing a holistic understanding of waterbody health. Enables iwi to communicate with the water manager (entity managing the water quality / discharge options) in a way that can be integrated into resource management processes.
Mauri Model/Mauri-o-meter/Ngāti Mākino Model[140]	The Mauri Model is a tool to integrate iwi values and perspectives into decision-making, particularly around stormwater infrastructure projects. The model works by having a group look at how different choices will affect the mauri of the environment. They decide if an option will make the mauri better or worse. Rather than assessing the current state of a waterbody or ecosystem, the Mauri Model is focused on guiding decisions for future projects.
Cultural Flow Preference Study[141]	The Cultural Flow Preference Study is a decision-making and negotiation tool for water management. The process involves talking to iwi members about how they value and use local waterways, and then mapping what is important to them. Iwi members then rate how satisfied they are with the health of their waterways.
Te Kāhui o Matariki analytical framework[142]	The Environment Aotearoa 2022 report by the Ministry for the Environment assesses the country's environmental health and uses the nine starts of Matariki as an overarching narrative. The various stars of Matariki are associated with different domains of the natural world, particularly the whenua, forests, freshwater, salt water, wind, and rain. The stars are used to tell the story of the many facets of the environment, its connection and interaction with people, and provides a link from the past to the present and into the future.
Wai ora Wai Māori[143]	Wai Ora Wai Māori is a framework that utilises iwi and hapū-specific mātauranga and tikanga to assess the health of local waterbodies.

[138] Rainforth, H., & Harmsworth, G. 2019. Kaupapa Māori Freshwater Assessments. P.22.

[139] Waitangi Tribunal. 2019. The Stage 2 Report WAI2358, P.121.

[140] Rainforth, H., & Harmsworth, G. 2019. Kaupapa Māori Freshwater Assessments. P.34.

[141] Rainforth, H., & Harmsworth, G. 2019. Kaupapa Māori Freshwater Assessments. P.37.

[142] Ministry for the Environment & Stats NZ. 2022. Environment Aotearoa 2022. P.8.

[143] Manaaki Whenua Landcare Research. 2017. Wai Ora Wai Māori - A kaupapa Māori assessment tool. P.1.

Example	Description
Cultural mapping[144]	Cultural mapping is a generic method that covers a wide range of purposes and functions. It can capture broad-scale values for an area, cultural perspectives, uses and practices, specific site knowledge, and mātauranga around spiritual and metaphysical elements. For freshwater monitoring purposes, cultural mapping can be applied to determine what species were once present in a waterbody, how abundant those species were, what cultural practices occurred in an area, and what the special values and metaphysical aspects of a place are.
Mauri of Waterways Kete and Framework[145]	The Mauri of Waterways Kete and Framework is a framework and tool primarily for assessing how well council planning and implementation meet Māori expectations for environmental outcomes. The Mauri of Waterways Kete and Framework, alongside Mana Whenua and Wāhi Tapu, forms a trio of kete that were developed under the international research initiative, Planning Under a Cooperative Mandate project. The purpose of these kete, particularly the Mauri of Waterways, is to provide RMA practitioners with effective tools that are grounded in kaupapa Māori principles.
Mātauranga Māori Knowledge Networks[146]	The Mātauranga Māori Knowledge Networks project assesses river health through a te ao Māori-lens. This initiative was established by the Technical Leaders Group and supported the Collaborative Stakeholder Group to engage in discussions about the Healthy Rivers Plan amendment to the Waikato Regional Plan. The project pinpointed critical topics that should be considered when monitoring freshwater quality from a Māori standpoint. These included: • The use of rivers for swimming; • The presence and health of species important for traditional food gathering; • Unique attributes of rivers as seen by river iwi.

[144] Rainforth, H., & Harmsworth, G. 2019. Kaupapa Māori Freshwater Assessments. p. 45.

[145] Rainforth, H., & Harmsworth, G. 2019. Kaupapa Māori Freshwater Assessments. p. 54.

[146] Rainforth, H., & Harmsworth, G. 2019. Kaupapa Māori Freshwater Assessments. p. 69.

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