

Proposed Waikato Regional Plan Change 1 – Waikato and Waipā River Catchments

~~Notified version (October 2016)~~

Officer's "Tracked Changes" Version Hearing Block 1 Recommendations Only

Red tracked changes are insertions or deletions
due to Variation 1

Black tracked changes are insertions or deletions
recommended by the Council Officers

Important:

- 1. Relevant pages only (other pages will be addressed through future recommendations)*
- 2. In case of any conflicts, errors or omissions, the Section 42A Report prevails.*

3.11 Waikato and Waipa River Catchments/Ngā Riu o ngā Awa o Waikato me Waipā

Area covered by Chapter 3.11/Ngā Riu o ngā Awa o Waikato me Waipā

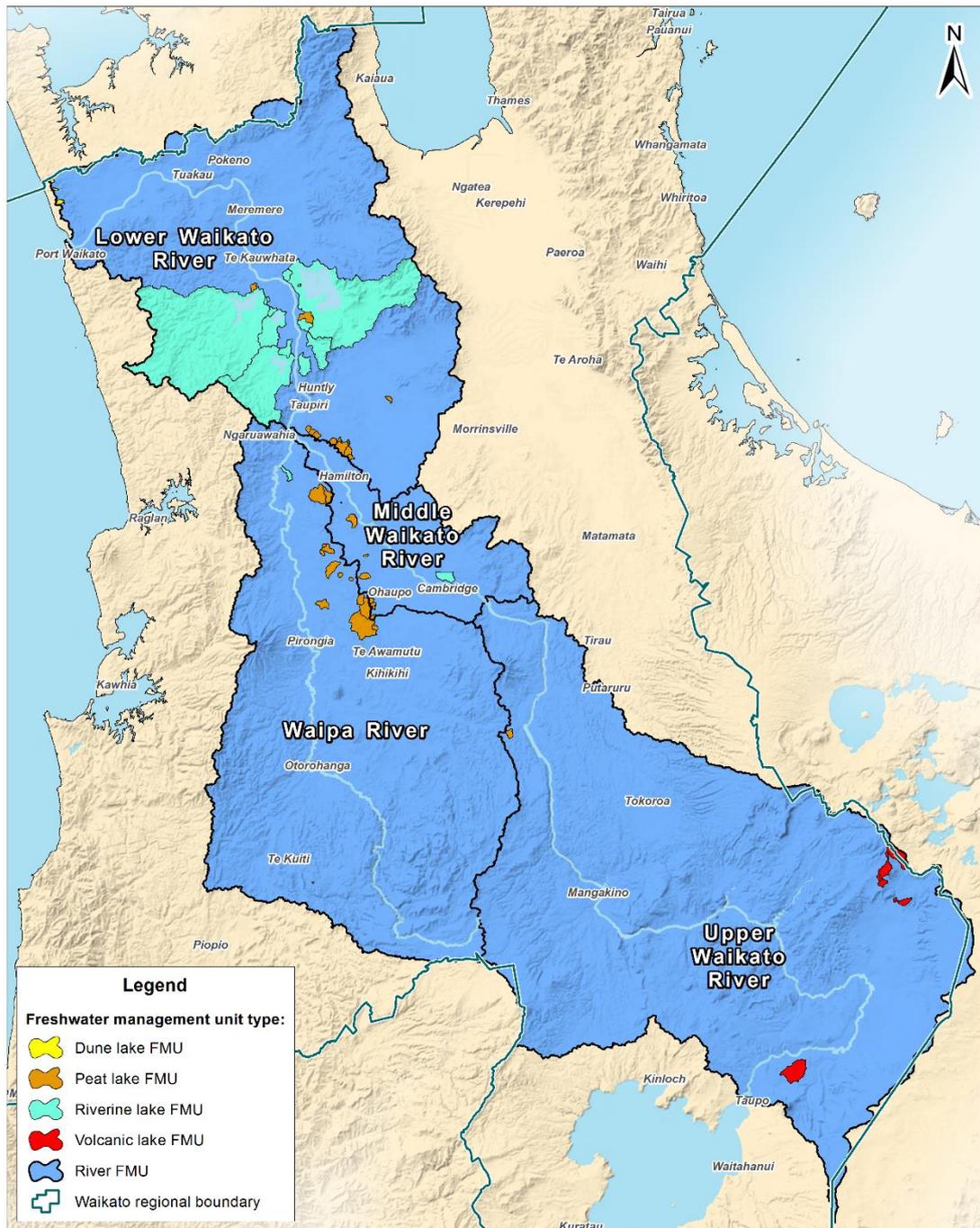
This Chapter 3.11 applies to the Waikato and Waipa River catchments. The map shown in Map 3.11-1 shows the general catchment boundary. This Chapter is additional to all other parts of the Waikato Regional Plan. Where there are any inconsistencies, Chapter 3.11 prevails.

Map 3.11-1 shows the general catchment boundary and includes the boundaries of each Freshwater Management Unit[^] (FMU): The FMUs are:

- Upper Waikato River
- Middle Waikato River
- Lower Waikato River
- Waipa River
- Peat Lakes
- Riverine Lakes
- Dune Lakes
- Volcanic Lakes

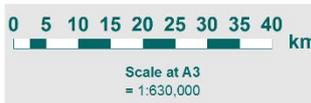
FMUs are required by central government's National Policy Statement for Freshwater Management 2014. FMUs enable monitoring of progress towards meeting targets[^] and limits[^].

The Plan maps of the Waikato and Waipa River catchments are available electronically or for viewing at Waikato Regional Council offices on request.



Acknowledgements and Disclaimers
 1. © Waikato Regional Council 2013-2016. Healthy Rivers: Plan for Change / Wai Ora: He Rautaki Whakapūāwai Data.
 2. Digital political boundaries data sourced from Statistics New Zealand.
 3. Hydrological data sourced from Land Information New Zealand. Crown Copyright Reserved.

Freshwater management units



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Map 3.11-1: Map of the Waikato and Waipa River catchments, showing Freshwater Management Units

Updated map showing corrected regional boundaries, legend and lake colours to be inserted

3.11.1 Values and uses for the Waikato and Waipa Rivers/Ngā Uara me ngā Whakamahinga o ngā Awa o Waikato me Waipā

The National Policy Statement – Freshwater Management Policy CA2 requires certain steps to be taken in the process of setting limits¹. These include establishing the values¹ that are relevant in a FMU¹, identifying the attributes¹ that correspond to those values¹, and setting objectives based on desired attribute states¹. This section describes values and uses for the Waikato and Waipa Rivers, to provide background to the objectives and limits¹ in later sections.

This section describes the values and uses for the Waikato and Waipā Rivers. The values and uses reflect the Vision and Strategy for the Waikato River. The values and uses set out below apply to all FMU's unless explicitly stated, and provide background to the freshwater objectives, and the attributes and attribute states outlined in Table 3.11-1.

Vision and Strategy for the Waikato River/Te Ture Whaimana o Te Awa o Waikato¹

“Our vision is for a future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come.”²

The values below have been prepared and are supported by the Collaborative Stakeholder Group.

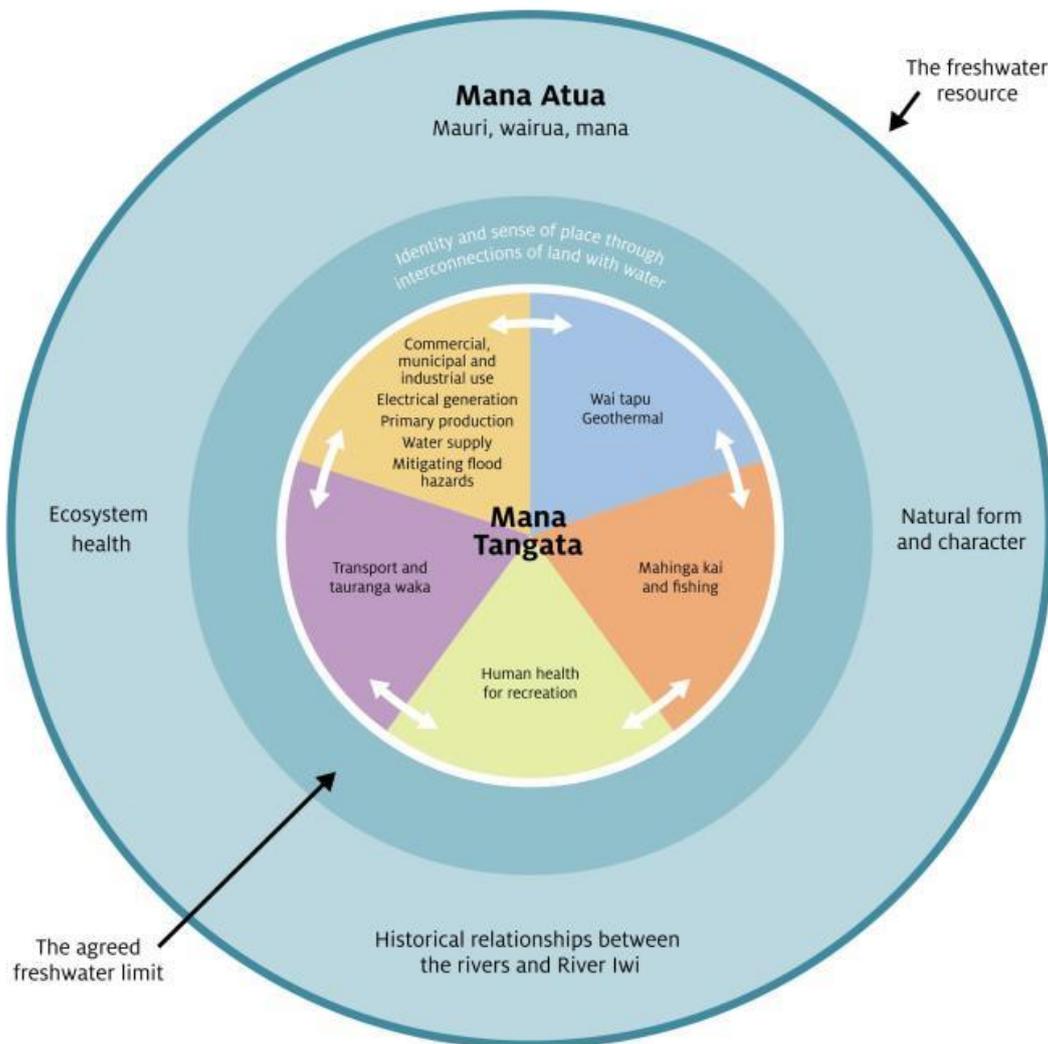
¹ The Nga Wai o Maniapoto (Waipa River) Act 2012 extended Te Ture Whaimana o te Awa o Waikato to also cover the Waipa River and its catchment

² The Vision and Strategy is intended by Parliament to be the primary direction setting document for the Waikato River and activities within its catchment affecting the Waikato River. Values and uses are intrinsic to, and embedded in the Vision and Strategy.

Te Mana o te Wai: Mana Atua, Mana Tangata

Values can be thought of in terms of Mana Atua and Mana Tangata, which represent Te Mana o te Wai³. Mana Atua represents the intrinsic values of water including the mauri (the principle of life force), wairua (the principle of spiritual dimension) and inherent mana (the principle of prestige, authority) of the water and its ecosystems in their natural state. Mana Tangata refers to values of water arising from its use by people for economic, social, spiritual and cultural purposes. Mana Atua and Mana Tangata values encompass past, present and future.

A strong sense of identity and connection with land and water (hononga ki te wai, hononga ki te whenua) is apparent through the Vision and Strategy and the many values associated with the rivers. This is represented in the figure below as a unifying value that provides an interface between the Mana Atua and Mana Tangata values.



Note: New diagram from Variation 1 to be inserted.

³ The National Policy Statement for Freshwater Management 2014 states that the aggregation of a range of community and tangata whenua values, and the ability of fresh water to provide for them over time, recognises the national significance of fresh water and Te Mana o te Wai.

Hononga ki te wai, hononga ki te whenua - Identity and sense of place through the interconnections of land with water

- The rivers contribute to a sense of community and sustaining community wellbeing.
- The rivers are an important part of whānau/family life, holding nostalgic feelings and memories and having deep cultural and historical significance.
- For River Iwi and other iwi, respect for the rivers, wetlands and springs lies at the heart of the spiritual and physical wellbeing of iwi and their tribal identity and culture. The river, wetlands and springs are is not separate from the people but part of the people, “Ko au te awa, ko te awa ko au” (I am the river and the river is me).
- Whanaungatanga is at the heart of iwi relationships with rivers, wetlands and springs. Te taura tāngata is the cord of kinship that binds iwi to rivers, wetlands and springs. It is a braid that is tightly woven, tying in all its strands. It is unbroken and infinite, forming the base for kaitiakitanga and the intergenerational role that iwi have as kaitiaki.
- The rivers are a shared responsibility, needing collective stewardship: kaitiakitanga – working together to restore the rivers. There is also an important intergenerational equity concept within kaitiakitanga.
- Mahitahi (collaborative work) encourages us all to work together to achieve common goals.

3.11.1.1 Mana Atua – Intrinsic values

Intrinsic values – ~~Ancestry and History~~

~~Ko te whakapapa o ngā iwi ki ōna awa tūpuna Ko ngā hononga tūpuna me ngā hononga o mua i waenga i ngā iwi o te awa me ētehi atu iwi me ngā awa, ngā repo me ngā puna / Ancestral and Historical relationships connections between the rivers, wetlands, springs and River Iwi and other iwi~~

Ko ngā kōrero tūpuna me ngā Kōrero o Mua ~~neherā~~ / Ancestry and History

<p>Each River Iwi <u>and other iwi have</u> has their own unique and intergenerational relationship with the rivers, <u>wetlands and springs</u>.</p>	<ul style="list-style-type: none"> ▪ The Rivers, <u>wetlands and springs</u> have always been seen as taonga (treasures) to all River Iwi <u>and other iwi</u>. ▪ The Rivers, <u>wetlands and springs</u> have always given River Iwi <u>and other iwi</u> a strong sense of identity and connection with the land and water. ▪ Rivers, <u>wetlands and springs</u> were used holistically; River Iwi <u>and other iwi</u> understood the functional relationships with and between all parts of the rivers, <u>wetlands and springs</u>, spiritually and physically <u>as kaitiaki</u>. ▪ <u>Tribal taniwha and tupua dwell in the rivers which are also the location of continued spiritual and cultural traditions and practices maintained over the many centuries.</u> ▪ <u>Iwi tūpuna inhabited a rohe that teemed with life in the rivers, wetlands and springs. These resources were subject to access and use rights as an essential part of kaitiakitanga.</u> ▪ Iwi strive to maintain and restore these relationships despite the modification and destruction that has occurred through different types of development along <u>affecting</u> the rivers, <u>wetlands and springs</u>.
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Intrinsic values – ~~Ecosystem health~~

Ko te hauora me te mauri o te wai / The health and mauri of water

Ecosystem health

<p>The Waikato and Waipa catchments support resilient freshwater ecosystems and healthy freshwater populations of indigenous plants and animals.</p>	<ul style="list-style-type: none"> ▪ Clean fresh water restores and protects aquatic native vegetation to provide habitat and food for native aquatic species and for human activities or needs, including swimming and drinking. ▪ Clean fresh water restores and protects macroinvertebrate communities for their intrinsic value and as a food source for native fish, native birds and introduced game species. ▪ Clean fresh water supports native freshwater fish species.
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	<ul style="list-style-type: none"> Wetlands and floodplains provide water purification, refuge, feeding and breeding habitat for aquatic species, habitat for water fowl and other ecosystem services such as flood attenuation. Fresh water contributes to unique habitats including peat lakes, shallow riverine lakes and karst formations which all support unique biodiversity. Rivers and adjacent riparian margins have value as ecological corridors.
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~~Intrinsic values – Natural form and character~~

Ko te hauora me te mauri o te taiao / The health and mauri of the environment

Natural form and character

Retain the integrity of the <u>lakes, rivers and wetlands</u> within the landscape and its aesthetic features and natural qualities for people to enjoy.	<ul style="list-style-type: none"> The Lakes, rivers and wetlands have amenity and naturalness values, including native vegetation, undeveloped stretches, and significant sites. People are able to enjoy the natural environment; it contributes to their health and wellbeing. The rivers are an ecological and cultural corridor. The <u>lakes, rivers and wetlands</u> as a whole living entity.
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3.11.1.2 Mana Tangata – Use values

~~Use values – Wai tapu~~

Ko ngā wai tapu me ngā wai kino / Sacred and harmful waters

Wai tapu and wai kino

Area of water body set aside for spiritual activities that support spiritual, cultural and physical wellbeing <u>or have properties that require additional caution or care.</u>	<ul style="list-style-type: none"> The Lakes, rivers and wetlands are a place for sacred rituals, wairua, healing, spiritual nurturing and cleansing. The Lakes, rivers and wetlands provide for cultural and heritage practices and cultural wellbeing, particularly at significant sites. The Lakes, <u>rivers and wetlands have different states of wai tapu and wai kino that are adhered to and respected.</u>
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~~Use values – Geothermal~~

Ko ngā Ngāwhā / Geothermal

Geothermal

A valued resource that is naturally gifted to sustain certain activities (meeting spiritual and physical needs).	<ul style="list-style-type: none"> Geothermal areas and their various resources were prized by tūpuna (ancestors) for their many uses and are still valued and used today. Geothermal areas of the river have natural form and character, and unique flora found only in the geothermal environment. Geothermal areas are a special microclimate.
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~~Use values – Mahinga kai~~

Ko ngā wāhi mahinga kai / Food gathering, places of food

Mahinga kai

The ability to access the Waikato and Waipa <u>Rivers, lakes, and wetlands</u> and their tributaries to gather sufficient	<ul style="list-style-type: none"> The Lakes, rivers and wetlands provide for freshwater native species, native vegetation, and habitat for native animals. The Lakes, rivers and wetlands provide for freshwater game and introduced kai species.
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<p>quantities of kai (food) that is safe to eat and meets the social and spiritual needs of their stakeholders.</p>	<ul style="list-style-type: none"> ▪ The Lakes, rivers and wetlands provide for cultural wellbeing, knowledge transfer, intergenerational harvest, obligations of manaakitanga (to give hospitality to, respect, generosity and care for others) and cultural opportunities, particularly at significant sites. ▪ The rivers should be safe to take food from, both fisheries and kai. ▪ The Lakes, rivers and wetlands support aquatic life, healthy biodiversity, ecosystem services, flora and fauna and biodiversity benefits for all. ▪ The rivers are a corridor. ▪ The Lakes, rivers and wetlands provide resources available for use which could be managed in a sustainable way. ▪ The rivers provide for recreation needs and for social wellbeing.
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~~Use values – Human health for recreation~~

Ko te hauora me te mauri o ngā tāngata / The health and mauri of the people

Human health for recreation

<p>The Lakes and rivers are a place to swim and undertake recreation activities in an environment that poses minimal risk to health.</p>	<ul style="list-style-type: none"> ▪ The Lakes and rivers provide for recreational use, social needs and social wellbeing, are widely used by the community, and are a place to relax, play, exercise and have an active lifestyle. ▪ An important value for the Lakes and rivers is cleanliness; the Lakes and rivers should be safe for people to swim in. ▪ The Lakes and rivers provide resources available for use which could be managed in a sustainable way.
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~~Use values – Transport and tauranga waka~~

He urungi / Navigation

Transport and tauranga waka

<p>All communities can use the Lakes and rivers to pilot their vehicles and waka and navigate to their destinations.</p>	<ul style="list-style-type: none"> ▪ The Lakes and rivers provide for recreational use (navigation), and sporting opportunities. ▪ The Lakes and rivers are a corridor, mode of transport and mode of communication. ▪ The Lakes and rivers provide for culture and heritage, cultural wellbeing, and social wellbeing, particularly at significant sites.
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~~Use values – Primary production~~

Ko ngā mahi māra me ngā mahi ahu matua / Cultivation and primary production

Primary production

<p>The rivers support regionally and nationally significant primary production in the catchment (agricultural, horticultural, forestry). These industries contribute to the economic, social and cultural wellbeing of people and communities, and are the major component of wealth creation within the region. These industries and associated primary production also support other industries and</p>	<ul style="list-style-type: none"> ▪ The rivers support a wide variety of primary production in the catchment, including dairy, meat, wool, horticulture and forestry. ▪ Due to the economies of scale of these industries, other service sectors, such as agritech, aviation and manufacturing, are able to operate. ▪ These industries combined contribute significantly to regional and national GDP, exports, food production and employment. ▪ The rivers and the surrounding land offer unique opportunities for many communities and industries to operate, contributing to the lifestyle and sense of community, pride and culture in rural and urban Waikato.
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communities within rural and urban settings.	
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Water supply

Ko ngā hapori wai Māori / Municipal and domestic water supply

Water supply

The rivers provide for community water supply, municipal supply and drinkable water supply and health.	<ul style="list-style-type: none"> The catchments' surface and subsurface water is of a quality that can be effectively treated to meet appropriate health standards for both potable and non-potable uses.
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~~Use values – Commercial, municipal and industrial use~~

Ko ngā āu pūtea / Economic or commercial development

Commercial, municipal and industrial use

The rivers, lakes, and wetlands provide economic opportunities to people, businesses and industries.	<p>Fresh water is used for industrial and municipal processes, which rely on the assimilative capacity for discharges to surface water bodies. In addition:</p> <ul style="list-style-type: none"> The Lakes, rivers and wetlands provide for economic wellbeing, financial and economic contribution, individual businesses and the community and the vibrancy of small towns. They are working lakes, rivers and wetlands; they create wealth. Those industries are important to the monetary economy of Waikato region, enabling a positive brand to promote to overseas markets. The Lakes, rivers and wetlands provide for domestic and international tourism. Promotion of a clean, green image attracts international and domestic visitors. The Lakes, rivers and wetlands provide assimilative capacity for wastewater disposal, flood and stormwater, and ecosystem services through community schemes or on site disposal.
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~~Use values – Electricity generation~~

Electricity generation

<p>The river provides for reliable, renewable hydro and geothermal energy sources and thermal generation, securing national self-reliance and resilience.</p> <p>New Zealand's social and economic wellbeing are dependent on a secure, cost-effective electricity supply system. Renewable energy contributes to our international competitive advantage. Electricity also contributes to the health and safety of people and communities.</p>	<ul style="list-style-type: none"> Waikato hydro scheme extends over 186km, comprising Lake Taupō storage, dams, lakes, and power stations. Tongariro Power scheme adds 20 per cent to natural inflows to Lake Taupō. Huntly Power Station's role in the New Zealand electricity system is pivotal, particularly when weather dependent renewable generation is not available. Fresh water is used for cooling and process water. Geothermal power stations located on multiple geothermal systems use fresh water for cooling, process water and drilling.
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~~Use values – Mitigating flood hazards~~

Mitigating flood hazards

Flood management systems protect land used and inhabited by people <u>and</u> <u>livestock</u> .	<ul style="list-style-type: none">▪ River engineering, including stopbanks and diversions, protect land and infrastructure from damage by flooding.
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Hearing Block 1 Only

3.11.2 Objectives/Ngā Whāinga

Objective 1: Long term restoration and protection of water quality for each sub-catchment and Freshwater Management Unit/Te Whāinga 1: Te whakaoranga tauroa me te tiakanga tauroa o te kounga wai ki ia riu kōawaawa me te Wae Whakahaere i te Wai Māori

By 2096 ~~at the latest~~, a reduction in the discharges of nitrogen, phosphorus, sediment and microbial pathogens to land and water results in achievement of the restoration and protection of the Waikato and Waipā Rivers, such that of the 80-year water quality attribute ~~targets~~ states in Table 3.11-1 ~~are met~~.

Objective 2: Social, economic and cultural wellbeing is maintained in the long term/Te Whāinga 2: Ka whakaūngia te oranga ā-pāpori, ā-ōhanga, ā-ahurea hoki i ngā tauroa

Waikato and Waipa communities and their economy benefit from the restoration and protection of water quality in the Waikato and Waipā River catchments, which enables the people and communities to continue to provide for their social, economic and cultural wellbeing.

Objective 3: Short term improvements in water quality in the first stage of restoration and protection of water quality for each sub-catchment and Freshwater Management Unit/Te Whāinga 3: Ngā whakapainga taupoto o te kounga wai i te wāhanga tuatahi o te whakaoranga me te tiakanga o te kounga wai i ia riu kōawāwa me te Wae Whakahaere Wai Māori

Actions put in place and implemented by 2026 to reduce diffuse and point source discharges of nitrogen, phosphorus, sediment and microbial pathogens, are sufficient to achieve the short-term water quality attribute states in Table 3.11-1. ~~ten~~ percent of the required change between current water quality and the 80-year water quality attribute targets in Table 3.11-1. A ten percent change towards the long term water quality improvements is indicated by the short term water quality attribute targets in Table 3.11-1.

Objective 4: People and community resilience/Te Whāinga 4: Te manawa piharau o te tangata me te hāpori

A staged approach to change enables people and communities to undertake adaptive management to continue to provide for their social, economic and cultural wellbeing in the short term while:

- a. ~~considering the values and uses when taking action to achieve the attribute[^] targets[^] for the Waikato and Waipa Rivers in Table 3.11-1; and~~
- b. ~~recognising that further contaminant reductions will be required by subsequent regional plans and signalling anticipated future management approaches that will be needed to meet Objective 1.~~

OR

Objective 4: People and community resilience/Te Whāinga 4: Te manawa piharau o te tangata me te hāpori

A staged approach to reducing contaminant losses change enables people and communities to undertake adaptive management to continue to provide for their social, economic and cultural wellbeing in the short term while:

- a. ~~considering the values and uses when taking action to achieve the attribute[^] targets[^] states for the Waikato and Waipa Rivers in Table 3.11-1; and~~
- b. ~~recognising that further contaminant reductions will be required by subsequent regional plans and signalling anticipated future management approaches that will be needed in order to meet Objective 1.~~

Objective 5: Mana Tangata – protecting and restoring tangata whenua values/Te Whāinga 5: Te Mana Tangata – te tiaki me te whakaora i ngā uara o te tangata whenua

Tangata whenua values are integrated into the co-management of the rivers and other water bodies within the catchment such that:

- a. tangata whenua have the ability to:
 - i. manage their own lands and resources, by exercising mana whakahaere, for the benefit of their people; and
 - ii. actively sustain a relationship with ancestral land and with the rivers and other water bodies in the catchment; and
- b. new impediments to the flexibility of the use of tangata whenua ancestral lands are minimised; and
- c. improvement in the rivers' water quality and the exercise of kaitiakitanga increase the spiritual and physical wellbeing of iwi and their tribal and cultural identity.

Objective 6: Whangamarino Wetland/Te Whāinga 6: Ngā Repo o Whangamarino

- a. Nitrogen, phosphorus, sediment and microbial pathogen loads in the catchment of Whangamarino Wetland are reduced in the short term, to make progress towards the long-term restoration of Whangamarino Wetland; and
- b. The management of contaminant loads entering Whangamarino Wetland is consistent with the achievement of the water quality attribute^targets^ in Table 3.11-1.

OR

Objective 6: Whangamarino Wetland/Te Whāinga 6: Ngā Repo o Whangamarino

- a. Nitrogen, phosphorus, sediment and microbial pathogen loads in the catchment of Whangamarino Wetland are reduced in the short term, to make progress towards the long-term restoration of Whangamarino Wetland; and
- b. The management of contaminant loads entering Whangamarino Wetland is consistent with the achievement of the water quality attribute^targets^ in Table 3.11-1.

Principal Reasons for Adopting Objectives 1-6/Ngā Take Matua me Whai ngā Whāinga 1 ki te 6

Reasons for adopting Objective 1

Objective 1 sets long-term limits^ for water quality consistent with the Vision and Strategy. Objective 1 sets aspirational 80-year water quality targets^, which result in improvements in water quality from the current state monitored in 2010-2014. The water quality attributes^ listed in Table 3.11-1 that will be achieved by 2096 will be used to characterise the water quality of the different FMUs when the effectiveness of the objective is assessed. Objective 1 sets the overall context for what is to be achieved in terms of water quality improvements. There is not any hierarchy of Objectives 1 to 6

Reasons for adopting Objective 2

Objective 2 sets the long-term outcome for people and communities, recognising that restoration and protection of water quality will continue to support communities and the economy. The full achievement of the Table 11-1 2096 water quality attribute^ targets^ may require a potentially significant departure from how businesses and communities currently function, and it is important to minimise social disruption during this transition.

Reasons for adopting Objective 3

Objective 3 sets short-term goals for a 10-year period, to show the first step toward full achievement of water quality consistent with the Vision and Strategy.

The effort required to make the first step may not be fully reflected in water quality improvements that are measurable in the water in 10 years. For this reason, the achievement of the objective will rely on measurement and monitoring of actions taken on the land to reduce pressures on water quality.

Point source discharges are currently managed through existing resource consents, and further action required to improve the quality of these discharges will occur on a case-by-case basis at the time of consent renewal, guided by the targets and limits set in Objective 1.

Reasons for adopting Objective 4

Objective 4 provides for a staged approach to long-term achievement of the Vision and Strategy. It acknowledges that in order to maintain the social, cultural and economic wellbeing of communities during the 80-year journey, the first stage (the short term 10-year period) must ensure that overall costs to people can be sustained.

In the future, a property-level allocation of contaminant discharges may be required. Chapter 3.11 sets out the framework for collecting the required information so that the most appropriate approach can be identified. Land use type or intensity at July 2016 will not be the basis for any future allocation of property-level contaminant discharges. Therefore, consideration is needed of how to manage impacts in the transition.

Objective 4 seeks to minimise social disruption in the short term, while encouraging preparation for possible future requirements.

Reasons for adopting Objective 5

Objective 5 seeks to ensure that this Plan recognises and provides for the relationship of tangata whenua with ancestral lands, by ensuring the other provisions of Chapter 3.11 do not provide a further impediment to tangata whenua making optimal use of their land. Historic impediments included customary tenure in the nineteenth century, public works, rating law, Te Ture Whenua Māori Act, and confiscation. Some impediments or their effects continue currently, including issues of governance, fragmentation and compliance with central and local government regulations such as regional and district plans, or the emissions trading scheme. Land relevant to this objective is land returned through Treaty of Waitangi settlement, and land under Māori title that has multiple owners.

Reasons for adopting Objective 6

Objective 6 seeks to recognise the significant value of Whangamarino Wetland, a Ramsar site of international importance, and the complexity of this wetland system. It seeks to recognise that the bog ecosystems (which are particularly sensitive to discharges of contaminants) need protection over time. The effort required to restore Whangamarino Wetland over 80 years is considerable and as a minimum needs to halt and begin to reverse the decline in water quality in the first 10 years. This objective describes how wetland restoration needs to be supported by restoration of the Lower Waikato Freshwater Management Unit sub-catchments that flow into Whangamarino Wetland.

Policy 14: Lakes Freshwater Management Units/Te Kaupapa Here 14: Ngā Wae Whakahaere Wai Māori i ngā Roto

Restore and protect lakes by 2096 through the implementation of a tailored lake-by-lake approach, guided by Lake Catchment Plans prepared over the next 10 years, which will include collecting and using data and information to support improving the management of land use activities in the lakes Freshwater Management Units^.

Hearing Block 1 Only

3.11.1 List of Tables and Maps/Te Rārangi o ngā Ripanga me ngā Mahere

Table 3.11-1: Short term water quality limits and targets and long term numerical desired water quality states ~~targets~~ for the Waikato and Waipa River catchments/Ngā whāinga ā-tau taupoto, tauroa hoki mō te kounga wai i te riu o ngā awa o Waikato me Waipā

Table 3.11-2 List of sub-catchments showing Priority 1, Priority 2, and Priority 3 sub-catchments/Te rārangi o ngā riu kōawaawa e whakaatu ana i te riu kōawaawa i te Taumata 1, i te Taumata 2, me te Taumata 3

Map 3.11-1: Map of the Waikato and Waipa River catchments, showing Freshwater Management Units

Map 3.11-2: Map of the Waikato and Waipa River catchments, showing sub-catchments

Table 3.11-1: Short term water quality limits and targets and long term numerical desired water quality states ~~targets~~ for the Waikato and Waipa River catchments/Ngā whāinga ā-tau taupoto, tauroa hoki mō te kounga wai i te riu o ngā awa o Waikato me Waipā

Within the Waikato and Waipa River catchments, these targets and desired water quality states are used in decision-making processes guided by the objectives in Chapter 3.11 and for future monitoring of changes in the state of water quality within the catchments. With regard to consent applications for diffuse discharges or point source discharges of nitrogen, phosphorus, sediment and microbial pathogens, it is not intended, nor is it in the nature of water quality targets and the desired water quality states, that they be used directly as receiving water compliance limits/standards. Reference should also be made to Method 3.2.4.1.

Explanatory note to Table 3.11-1

The tables set out the concentrations (all attributes except clarity) or visibility distance (clarity attribute) to be maintained or achieved by actions taken in the short term and ~~at~~ over 80 years for rivers and tributaries, and at 80 years for lakes FMUs. Where water quality is currently high (based on 2010-2014 monitoring data), the short term targets and 80-year desired water quality states ~~targets~~ will be the same as the current state and there is to be no decline in quality (that is, no increase in attribute concentration or decrease in clarity). Where water quality needs to improve, the water quality states ~~values~~ to be achieved at a site indicate a short term and long term reduction in concentration or increase in clarity compared to the current state.

For example, at Otamakokore Stream, Upper Waikato River FMU:

- the current state value for median nitrate is 0.740 mgNO₃-N/L. The short term targets and 80-year desired water quality states ~~targets~~ are set at 0.740 mgNO₃-N/L to reflect that there is to be no decline in water quality
- the current state value for E.coli is 696 E.coli/100ml. The 80-year desired water quality state ~~target~~ is set at 540 E.coli/100ml and the short term target is set at 10% of the difference between the current state value and the 80 year desired water quality state ~~target~~.

The achievement of the attribute targets in Table 3.11-1 will be determined through analysis of 5-yearly monitoring data. The variability in water quality (such as due to seasonal and climatic events) and the variable response times of the system to implementation of mitigations may mean that the targets are not observed for every attribute at all sites in the short term.

The effect of some contaminants (particularly nitrogen) discharged from land has not yet been seen in the water. This means that in addition to reducing discharges from current use and activities, further reductions will be required to address the load to come that will contribute to nitrogen loads in the water. There are time lags between contaminants discharged from land uses and the effect in the water. For nitrogen in the Upper Waikato River particularly, this is because of the time taken for nitrogen to travel through the soil profile into groundwater and then eventually into the rivers. This means that there is some nitrogen leached from land use change that occurred decades ago that has entered groundwater, but has not yet entered the Waikato River. In some places, water quality (in terms of nitrogen) will deteriorate before it gets better. Phosphorus, sediment and microbial pathogens and diffuse discharges from land have shorter lag times, as they reach water from overland flow. However, there will be some time lags for actions taken to address these contaminants to be effective (for example tree planting for erosion control).

Table 3.11-1: Upper Waikato River Freshwater Management Unit

Catchment number	Site	Attributes																			
		Annual Median Chlorophyll a (mg/m ³)		Annual Maximum Chlorophyll a (mg/m ³)		Annual Median Total Nitrogen (mg/m ³)		Annual Median Total Phosphorus (mg/m ³)		Annual Median Nitrate (mg NO ₃ -N/L)		Annual 95 th percentile Nitrate (mg NO ₃ -N/L)		Annual Median Ammonia ¹ (mg NH ₄ -N/L)		Annual Maximum Ammonia ¹ (mg NH ₄ -N/L)		95 th percentile <i>E. coli</i> (<i>E. coli</i> /100mL)		Clarity (m) ²	
		short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year
<u>73</u>	Waikato River Ohaaki Br	1.5	1.5	13	13	134	134	10	10	0.039	0.039	0.062	0.062	0.002	0.002	0.013	0.013	70	70	3.8	3.8
<u>66</u>	Waikato River Ohakuri Tailrace Br	3.2	3.2	11	11	206	160	17	17	0.084	0.084	0.172	0.172	0.003	0.003	0.017	0.017	15	15	3.4	3.4
<u>67</u>	Waikato River Whakamaru Tailrace		5		25	260	160	20	20	0.101	0.101	0.230	0.230	0.003	0.003	0.010	0.010	60	60	2.0	3.0
<u>64</u>	Waikato River Waipapa Tailrace	4.1	4.1	25	25	318	160	25	20	0.164	0.164	0.320	0.320	0.007	0.007	0.017	0.017	162	162	2.0	3.0
<u>74</u>	Pueto Stm Broadlands Rd Br	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	0.450	0.450	0.530	0.530	0.003	0.003	0.009	0.009	92	92	1.8	3.0
<u>72</u>	Torepatutahi Stm Vaile Rd Br	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	0.500	0.500	0.800	0.800	0.002	0.002	0.011	0.011	216	216		
<u>65</u>	Waiotapu Stm Homestead Rd Br	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	1.257	1.0	1.563	1.5	0.112	0.03	0.176	0.05	281	281		

69	Mangakara Stm (Reporoa) SH5	NA ³	1.270	1.0	1.590	1.5	0.008	0.008	0.062	0.05	1584	540	0.9	1.0							
62	Kawaunui Stm SH5 Br	NA ³	2.580	2.4	2.850	1.5	0.006	0.006	0.079	0.05	2335	540	1.4	1.6							
58	Waiotapu Stm Campbell Rd Br	NA ³	0.915	0.915	1.100	1.100	0.291	0.24	0.315	0.05	18	18	1.2	1.6							
59	Otamakokore Stm Hossack Rd	NA ³	0.740	0.740	1.190	1.190	0.006	0.006	0.024	0.024	680	540	1.2	1.6							
56	Whirinaki Stm Corbett Rd	NA ³	0.770	0.770	0.870	0.870	0.002	0.002	0.012	0.012	98	98	2.7	3.0							
54	Tahunaatara Stm Ohakuri Rd	NA ³	0.555	0.555	0.830	0.830	0.003	0.003	0.015	0.015	783	540	1.3	1.6							
57	Mangaharakeke Stm SH30 (Off Jct SH1)	NA ³	0.525	0.525	0.750	0.750	0.003	0.003	0.015	0.015	684	540	1.1	1.6							
70	Waipapa Stm (Mokai) Tirohanga Rd Br	NA ³	1.189	1.0	1.500	1.5	0.003	0.003	0.005	0.005	1147	540	1.2	1.6							
71	Mangakino Stm Sandel Rd	NA ³	0.650	0.650	0.860	0.860	0.003	0.003	0.012	0.012	251	251	1.8	3.0							
49	Whakauru Stm SH1 Br	NA ³	0.260	0.260	0.450	0.450	0.003	0.003	0.033	0.033	2106	540	0.8	1.0							
48	Mangamingi Stm Paraonui Rd Br	NA ³	2.760	2.4	3.12	1.5	0.091	0.03	0.296	0.05	2151	540	0.8	1.0							
45	Pokaiwhenua Stm Arapuni - Putaruru Rd	NA ³	1.680	1.0	2.040	1.5	0.002	0.002	0.020	0.020	1363	540	1.3	1.6							

44	Little Waipa Stm Arapuni - Putaruru Rd	NA ³	1.522	1.0	2.040	1.5	0.002	0.002	0.085	0.05	1377	540	1.5	1.6							
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¹ The annual median and annual maximum ammonia have been adjusted for pH

² Median black disc horizontal sighting range under baseflow conditions

³ Attribute is not applicable to the sub-catchment

Hearing Block 1 Only

Table 3.11-1: Middle Waikato River Freshwater Management Unit

Catchment number	Site	Attributes																			
		Annual Median Chlorophyll a (mg/m ³)		Annual Maximum Chlorophyll a (mg/m ³)		Annual Median Total Nitrogen (mg/m ³)		Annual Median Total Phosphorus (mg/m ³)		Annual Median Nitrate (mg NO ₃ -N/L)		Annual 95 th percentile Nitrate (mg NO ₃ -N/L)		Annual Median Ammonia ¹ (mg NH ₄ -N/L)		Annual Maximum Ammonia ¹ (mg NH ₄ -N/L)		95 th percentile <i>E. coli</i> (<i>E. coli</i> /100mL)		Clarity (m) ²	
		short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year
<u>33</u>	Waikato River Narrows Boat Ramp	5.5	5	23	23	404	350	28	20	0.235	0.235	0.500	0.500	0.009	0.009	0.018	0.018	340	260	1.7	1.7
<u>25</u>	Waikato River Horotiu Br	6.1	5	23	23	432	350	34	20	0.260	0.260	0.530	0.530	0.007	0.007	0.029	0.029	774	540	1.4	1.6
<u>32</u>	Karapiro Stm Hickey Rd Bridge	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	0.520	0.520	1.689	1.5	0.008	0.008	0.031	0.031	4518	540	0.9	1.0
<u>35</u>	Mangawhero Stm Cambridge-Ohaupo Rd	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	1.990	1.0	2.490	1.5	0.041	0.03	0.072	0.05	2920	540	0.3	1.0
<u>29</u>	Mangaonua Stm Hoeka Rd	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	1.455	1.0	1.878	1.5	0.036	0.03	0.051	0.05	6372	540	1.0	1.0
<u>31</u>	Mangaone Stm Annebrooke Rd Br	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	2.580	2.4	2.940	1.5	0.009	0.009	0.02	0.02	2052	540	0.9	1.0
<u>30</u>	Mangakotukutuku Stm Peacockes Rd	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	0.800	0.800	1.788	1.5	0.077	0.03	0.132	0.05	11394	540	0.5	1.0

Catchment number	Site	Attributes																			
		Annual Median Chlorophyll a (mg/m ³)		Annual Maximum Chlorophyll a (mg/m ³)		Annual Median Total Nitrogen (mg/m ³)		Annual Median Total Phosphorus (mg/m ³)		Annual Median Nitrate (mg NO ₃ -N/L)		Annual 95 th percentile Nitrate (mg NO ₃ -N/L)		Annual Median Ammonia ¹ (mg NH ₄ -N/L)		Annual Maximum Ammonia ¹ (mg NH ₄ -N/L)		95 th percentile <i>E. coli</i> (<i>E.coli</i> /100mL)		Clarity (m) ²	
		short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year
28	Waitawhiriwhiri Stm Edgecumbe Street	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	0.880	0.880	1.240	1.24	0.256	0.24	0.318	0.05	5922	540	0.4	1.0
23	Kirikiroa Stm Tauhara Dr	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	0.815	0.815	1.572	1.5	0.096	0.03	0.183	0.05	2124	540	0.5	1.0

¹ The annual median and annual maximum ammonia have been adjusted for pH.

² Median black disc horizontal sighting range under baseflow conditions

³ Attribute is not applicable to the sub-catchment

Table 3.11-1: Lower Waikato River Freshwater Management Unit

Catchment number	Site	Attributes																			
		Annual Median Chlorophyll a (mg/m ³)		Annual Maximum Chlorophyll a (mg/m ³)		Annual Median Total Nitrogen (mg/m ³)		Annual Median Total Phosphorus (mg/m ³)		Annual Median Nitrate (mg NO ₃ -N/L)		Annual 95 th percentile Nitrate (mg NO ₃ -N/L)		Annual Median Ammonia ¹ (mg NH ₄ -N/L)		Annual Maximum Ammonia ¹ (mg NH ₄ -N/L)		95 th percentile <i>E. coli</i> (<i>E.coli</i> /100mL)		Clarity (m) ²	
		short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year
<u>20</u>	Waikato River Huntly-Tainui Br	5.9	5	19	19	562	350	43	20	0.365	0.365	0.900	0.900	0.005	0.005	0.015	0.015	1944	540	0.9	1.0
<u>9</u>	Waikato River Mercer Br	10.0	5	30	25	631	350	49	20	0.365	0.365	0.870	0.870	0.003	0.003	0.010	0.010	1494	540		
<u>4</u>	Waikato River Tuakau Br	11.3	5	37	25	571	350	50	20	0.325	0.325	0.880	0.880	0.003	0.003	0.008	0.008	1584	540	0.7	1.0
<u>22</u>	Komakorau Stm Henry Rd	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	1.279	1.0	4.400	3.5	0.250	0.24	0.419	0.40	3474	540	0.3	1.0
<u>17</u>	Mangawara Stm Rutherford Rd Br	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	0.765	0.765	2.760	1.5	0.103	0.03	0.172	0.05	4955	540	0.3	1.0

Catchment number	Site	Attributes																			
		Annual Median Chlorophyll a (mg/m ³)		Annual Maximum Chlorophyll a (mg/m ³)		Annual Median Total Nitrogen (mg/m ³)		Annual Median Total Phosphorus (mg/m ³)		Annual Median Nitrate (mg NO ₃ -N/L)		Annual 95 th percentile Nitrate (mg NO ₃ -N/L)		Annual Median Ammonia ¹ (mg NH ₄ -N/L)		Annual Maximum Ammonia ¹ (mg NH ₄ -N/L)		95 th percentile <i>E. coli</i> (<i>E.coli</i> /100mL)		Clarity (m) ²	
		short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year
19	Awaroa Stm (Rotowaro) Sansons Br @ Rotowaro-Huntly Rd	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	0.70	0.70	1.19	1.19	0.02	0.02	0.08	0.05	1800	540	0.8	1.0
14	Matahuru Stm Waiterimu Road Below Confluence	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	0.71	0.71	1.68	1.5	0.01	0.01	0.05	0.05	6147	540	0.4	1.0
16	Whangape Stm Rangiriri-Glen Murray Rd	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	0.00	0.00	0.69	0.69	0.00	0.00	0.13	0.05	584	540	0.3	1.0
12	Waerenga Stm SH2 Maramarua Taniwha Rd	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	0.82	0.82	1.41	1.41	0.00	0.00	0.02	0.02	5098	540	0.9	1.0
8	Whangamari no River Jefferies Rd Br	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	0.62	0.62	1.84	1.5	0.01	0.01	0.14	0.05	4712	540	0.6	1.0
2	Mangatangi River SH2 Maramarua	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	0.11	0.11	1.12	1.12	0.00	0.00	0.03	0.03	5567	540	0.5	1.0
1	Mangatawhiri River Lyons Rd	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	NA ³	0.01	0.01	0.37	0.37	0.00	0.00	0.01	0.01	5108	540	1.6	1.6

	<u>Buckingham Br</u>																					
<u>10</u>	Whangamari no River Island Block Rd	<u>NA³</u>	0.075	0.075	0.700	0.700	0.011	0.011	0.054	0.05	655	540	0.3	1.0								
<u>3</u>	<u>Whakapipi Stm SH22 Br</u>	<u>NA³</u>	<u>3.390</u>	<u>2.4</u>	<u>5.120</u>	<u>3.5</u>	<u>0.006</u>	<u>0.006</u>	<u>0.081</u>	<u>0.05</u>	<u>1773</u>	<u>540</u>	<u>1.1</u>	<u>1.1</u>								
<u>7</u>	Ohaeroa Stm SH22 Br	<u>NA³</u>	1.473	1.0	1.806	1.5	0.003	0.003	0.015	0.015	4667	540	0.8	1.0								
<u>11</u>	Opuatia Stm Ponganui Rd	<u>NA³</u>	0.740	0.740	1.060	1.060	0.005	0.005	0.016	0.016	2898	540	0.6	1.0								
<u>5</u>	Awaroa River (Waiuku) Otatau Rd Br Moseley Rd	<u>NA³</u>	1.369	1.0	2.310	1.5	0.021	0.021	0.135	0.05	1017	540	0.4	1.0								

¹ The annual median and annual maximum ammonia have been adjusted for pH.

² Median black disc horizontal sighting range under baseflow conditions

³ Attribute is not applicable to the sub-catchment

Table 3.11-1: Waipa River Freshwater Management Unit

Catchment number	Site	Attributes											
		Annual Median Nitrate (mg NO ₃ -N/L)		Annual 95 th percentile Nitrate (mg NO ₃ -N/L)		Annual Median Ammonia ¹ (mg NH ₄ -N/L)		Annual Maximum Ammonia ¹ (mg NH ₄ -N/L)		95 th percentile <i>E. coli</i> (<i>E.coli</i> /100mL)		Clarity (m) ²	
		short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year
<u>68</u>	Waipa River Mangaokewa Rd	0.380	0.380	0.600	0.600	0.003	0.003	0.017	0.017	2417	540	1.5	1.6
<u>60</u>	Waipa River Otewa	0.228	0.228	0.502	0.502	0.003	0.003	0.008	0.008	2036	540	2.1	2.1
<u>51</u>	Waipa River SH3 Otorohanga	0.370	0.370	1.050	1.050	0.004	0.004	0.020	0.020	3289	540	1.2	1.6
<u>43</u>	Waipa River Pirongia-Ngutunui Rd Br	0.565	0.565	1.270	1.270	0.008	0.008	0.023	0.023	4441	540	0.7	1.0
<u>34</u>	Waipa River Whatawhata Bridge	0.673	0.673	1.319	1.319	0.009	0.009	0.026	0.026	3657	540	0.6	1.0
<u>26</u>	Ohote Stm Whatawhata/Horotiu Rd	0.495	0.495	1.370	1.370	0.023	0.023	0.052	0.05	2142	540	0.6	1.0
<u>36</u>	Kaniwhaniwha Stm Wright Rd	0.350	0.350	0.890	0.890	0.007	0.007	0.022	0.022	1917	540	0.9	1.0
<u>38</u>	Mangapiko Bowman Rd Stm	1.369	1.0	2.490	1.5	0.022	0.022	0.076	0.03	7074	540	0.6	1.0
<u>39</u>	Mangaohoi Stm South Branch Maru Rd	0.230	0.230	0.390	0.390	0.003	0.003	0.008	0.008	943	540	1.6	1.6
37	Mangauika Stm Te Awamutu Borough W/S Intake	0.210	0.210	0.280	0.280	0.002	0.002	0.003	0.003	1008	540	3.3	3.3
40	Puniu River Bartons Corner Rd Br	0.650	0.650	1.280	1.280	0.007	0.007	0.029	0.029	2790	540	0.9	1.0

47	Mangatutu Stm Walker Rd Br	0.380	0.380	0.880	0.880	0.003	0.003	0.012	0.012	738	540	1.5	1.6
46	Waitomo Stm SH31 Otorohanga	0.520	0.520	0.830	0.830	0.008	0.008	0.025	0.025	1453	540	0.6	1.0
53	Mangapu River Otorohanga	0.860	0.860	1.360	1.360	0.015	0.015	0.057	0.05	4284	540	0.7	1.0
52	Waitomo Stm Tumutumu Rd	0.630	0.630	0.800	0.800	0.004	0.004	0.013	0.013	2241	540	1.1	1.6
63	Mangaokewa Stm Lawrence Street Br	0.530	0.530	0.980	0.980	0.004	0.004	0.013	0.013	6224	540	1.4	1.6

¹ The annual median and annual maximum ammonia have been adjusted for pH.

² Median black disc horizontal sighting range under baseflow conditions

³ Attribute is not applicable to the sub-catchment

Hearing Block 1 Only

Table 3.11-1: Dune, Riverine, Volcanic and Peat Lakes Freshwater Management Units

Lake FMU	Attributes								
	Annual Median Chlorophyll a (mg/m ³)	Annual Maximum Chlorophyll a (mg/m ³)	Annual Median Ammonia ¹ (mg NH ₄ -N/L)	Annual Maximum Ammonia ¹ (mg NH ₄ -N/L)	Annual Median Total Nitrogen (mg/m ³)	Annual Median total Phosphorus (mg/m ³)	95 th percentile <i>E. coli</i> (<i>E. coli</i> /100mL)	80 th percentile cyanobacteria (biovolume mm ³ /L)	Clarity (m) ¹
	80 year*	80 year*	80 year*	80 year*	80 year*	80 year*	80 year*	80 year*	80 year*
Dune	12	60	0.24	0.40	750	50	540	1.8 ⁺	1
Riverine	12	60	0.24	0.40	800	50	540	1.8 ⁺	1
Volcanic Zone	12	60	0.24	0.40	750	50	540	1.8 ⁺	1
Peat	12	60	0.24	0.40	750	50	540	1.8 ⁺	1

¹ The annual median and annual maximum ammonia have been adjusted for pH.

² Median black disc horizontal sighting range under baseflow conditions

*unless a lake is already of better water quality, in which case the water quality is to not decline

+1.8mm³/L biovolume equivalent of potentially toxic cyanobacteria or 10mm³/L total biovolume of all cyanobacteria

Table 3.11-2: List of sub-catchments showing Priority 1, Priority 2, and Priority 3 sub-catchments/Te rārangi o ngā riu kōawaawa e whakaatu ana i te riu kōawaawa i te Taumata 1, i te Taumata 2, me te Taumata 3

If more than fifty percent of a farm enterprise is in a particular sub-catchment, then the dates for compliance for that sub-catchment apply.

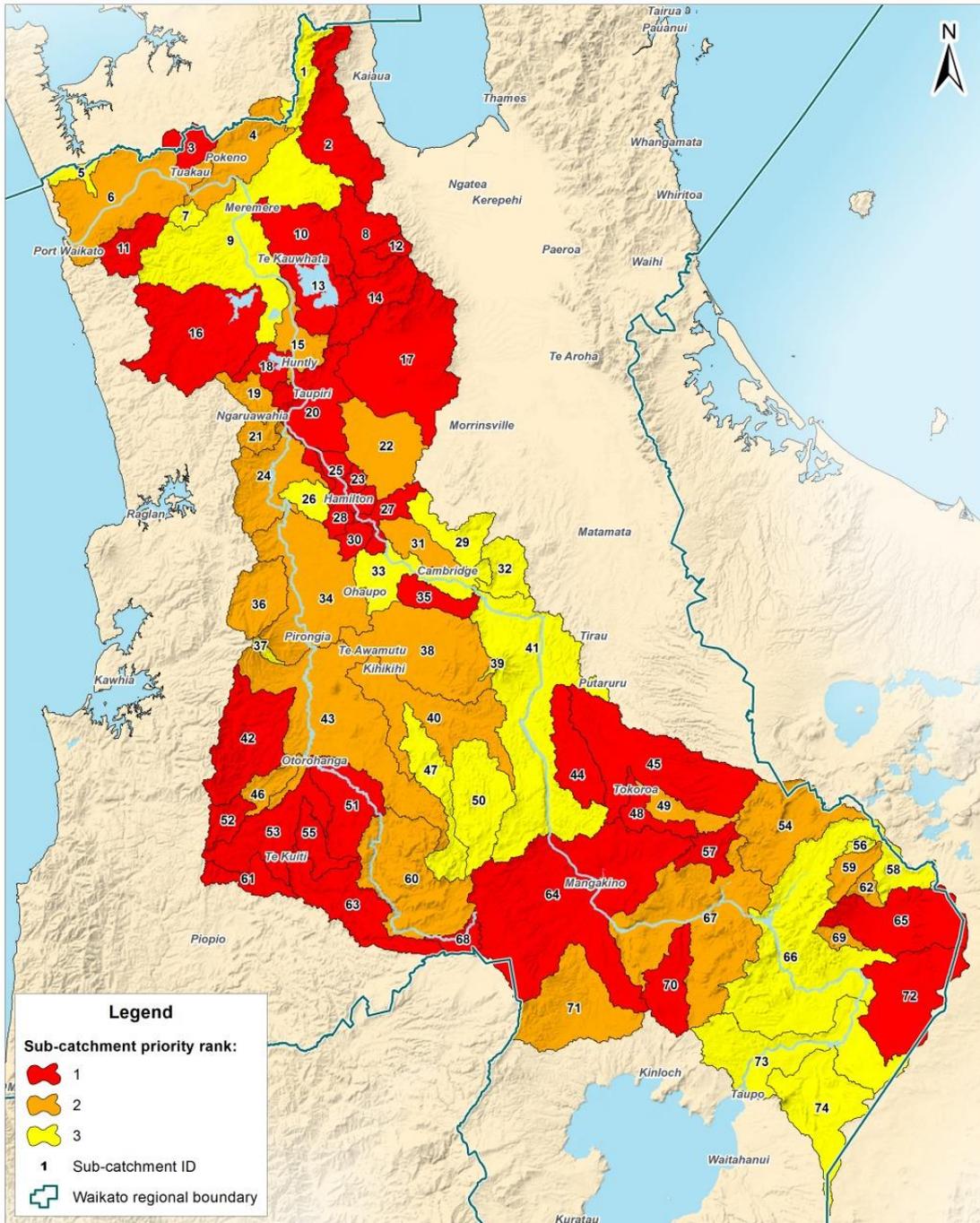
Sub-catchment identifier	Sub-catchment number	Priority
Mangatangi	2	1
Whakapipi	3	1
Whangamarino at Jefferies Rd Br	8	1
Whangamarino at Island Block Rd	10	1
Opuatia	11	1
Waerenga	12	1
Waikare	13	1
Matahuru	14	1
Whangape	16	1
Mangawara	17	1
Awaroa (Rotowaro) at Harris/Te Ohaki Br	18	1
Waikato at Huntly-Tainui Br	20	1
Kirikiroa	23	1
Waikato at Horotiu Br	25	1
Waikato at Bridge St Br	27	1
Waitawhiriwhiri	28	1
Mangakotukutuku	30	1
Mangawhero	35	1
Moakurarua	42	1
Little Waipa	44	1
Pokaiwhenua	45	1
Mangamingi	48	1
Waipa at Otorohanga	51	1
Waitomo at Tumutumu Rd	52	1
Mangapu	53	1
Mangarapa	55	1
Mangaharakeke	57	1
Mangarama	61	1

Mangaokewa	63	1
Waikato at Waipapa	64	1
Waiotapu at Homestead	65	1
Waipa at Mangaokewa Rd	68	1
Waipapa	70	1
Torepatutahi	72	1
Waikato at Tuakau Br	4	2
Waikato at Port Waikato	6	2 1
Waikato at Rangiriri	15	2 1
Awaroa (Rotowaro) at Sansons Br	19	2 1
Firewood	21	2
Komakorau	22	2
Waipa at Waingaro Rd Br	24	2
Mangaone	31	2
Waipa at SH23 Br Whatawhata	34	2 1
Kaniwhaniwha	36	2
Mangapiko	38	2
Puniu at Bartons Corner Rd Br	40	2
Waipa at Pirongia-Ngutunui Rd Br	43	2
Waitomo at SH31 Otorohanga	46	2
Whakauru	49	2
Tahunaatara	54	2
Otamakokore	59	2
Waipa at Otewa	60	2
Kawaunui	62	2
Waikato at Whakamaru	67	2
Mangakara	69	2
Mangakino	71	2
<u>Mangatawhiri</u>	<u>1</u>	<u>3</u>
Awaroa (Waiuku)	5	3
Ohaeroa	7	3
Waikato at Mercer Br	9	3

Ohote	26	3
Mangaonua	29	3
Karapiro	32	3
Waikato at Narrows	33	3 <u>1</u>
Mangauika	37	3
Mangaohoi	39	3
Waikato at Karapiro	41	3
Mangatutu	47	3
Puniu at Wharepapa	50	3
Whirinaki	56	3
Waiotapu at Campbell	58	3 <u>1</u>
Waikato at Ohakuri	66	3
Waikato at Ohaaki	73	3 <u>1</u>
Pueto	74	3

Table 3.11-2: List of sub-catchments showing Priority 1, Priority 2, and Priority 3 sub-catchments

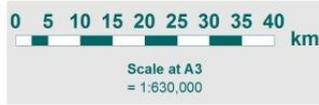
*-part sub-catchment



Acknowledgements and Disclaimers

1. © Waikato Regional Council 2013-2016. Healthy Rivers: Plan for Change / Wai Ora: He Rautaki Whakapaipai Data.
2. Priority ranking by sub-catchment supplied by NIWA.
3. Digital political boundaries data sourced from Statistics New Zealand.
4. Hydrological data sourced from Land Information New Zealand. Crown Copyright Reserved.

Sub-catchments



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Map 3.11-2: Map of the Waikato and Waipa River Catchments, showing sub-catchments

Updated map showing corrected regional boundaries, priority colours and lake colours to be inserted.