Te Kōrero o te whakahaere i ngā kāhui wai māori o Whakatāne

The Whakatāne Freshwater Management Unit Story

The purpose of this booklet is to explain draft options to address requirements of the National Policy Statement for Freshwater Management 2020 (NPSFM) in the Draft Whakatāne Freshwater Management Unit (FMU). These options are to do with how we manage freshwater in Whakatāne to achieve outcomes the community wants there.

This booklet covers:

- A description of the draft FMU
- Freshwater management issues in this FMU
- Options for:
  - **A.** A long-term vision for freshwater;
  - **B.** Proposed outcomes for key freshwater values;
  - **C.** Water quality, ecosystem health and other issues and targets;
  - **D.** Water take limits and minimum flows; and
  - **E.** The kinds of rules and other methods being considered to achieve these things.

We are early in the policy development process and are seeking feedback from the community to help inform the important decisions.

Your feedback to the questions inside this booklet can be provided in writing on the corresponding question sheet, online via our website or in person at one of our community events.

TOI MOANA BAY OF PLENTY REGIONAL COUNCIL

Ko te wai te oranga o ngā mea katoa

Water is the life-giver and essence of all things

Ngā tohu

This design represents the multiple waterways and waterbodies such as streams, rivers, lakes, and sea. The overall flowing form represents a river/tributary carving its way through the whenua. The koru has been included to represent the life force that water embodies and gives. Haehae represent whakapapa, including the past, present and future. It is a visual celebration of water as a life-giver and the essence of all things.

Te Wairere represents a waterfall with huka (foam) the dynamic movement of the water and the connections between different tributaries as they flow from the land to the sea, mai i te whenua, ki te moana.

Te Mana o te Wai - Tirohanga whānui

Essential Freshwater - Overview

In 2020, the New Zealand Government released the National Policy Statement for Freshwater Management (NPSFM) which outlines the direction all regional councils must take in the management of freshwater. As a result, the Bay of Plenty Regional Council now needs to change its Regional Policy Statement (RPS) and Regional Natural Resources Plan (Regional Plan). This means changing some of the policies and rules we use to manage how freshwater and land is used.

Between April 2023 and September 2023 we will ask you about your aspirations for your local waterways and your feedback on our draft change options. Your elected regional councillors will then consider and decide on options.

By the end of 2024 we will notify formal proposed changes to policies and rules. Everybody will be able to make submissions and be heard by a freshwater hearings panel.

- **Draft change options** *2022 - 2023*
- **Community engagement** *April - Sept 2023*
- **Amend options** *Late 2023*
- **Councillors decide** *Late 2024*
- **Notify propsed RPS and RNRP change** *Late 2024*
- **Public submissions** *2025*
- **Hearings** *Late 2025 - 2026*

We acknowledge there are already a lot of other changes happening due to a host of new national regulations and proposed new laws, and this is yet more. Nevertheless, we encourage your involvement because many of the proposals discussed are specific to this FMU and we need you, the community, to help work through and identify solutions that will work for us all.

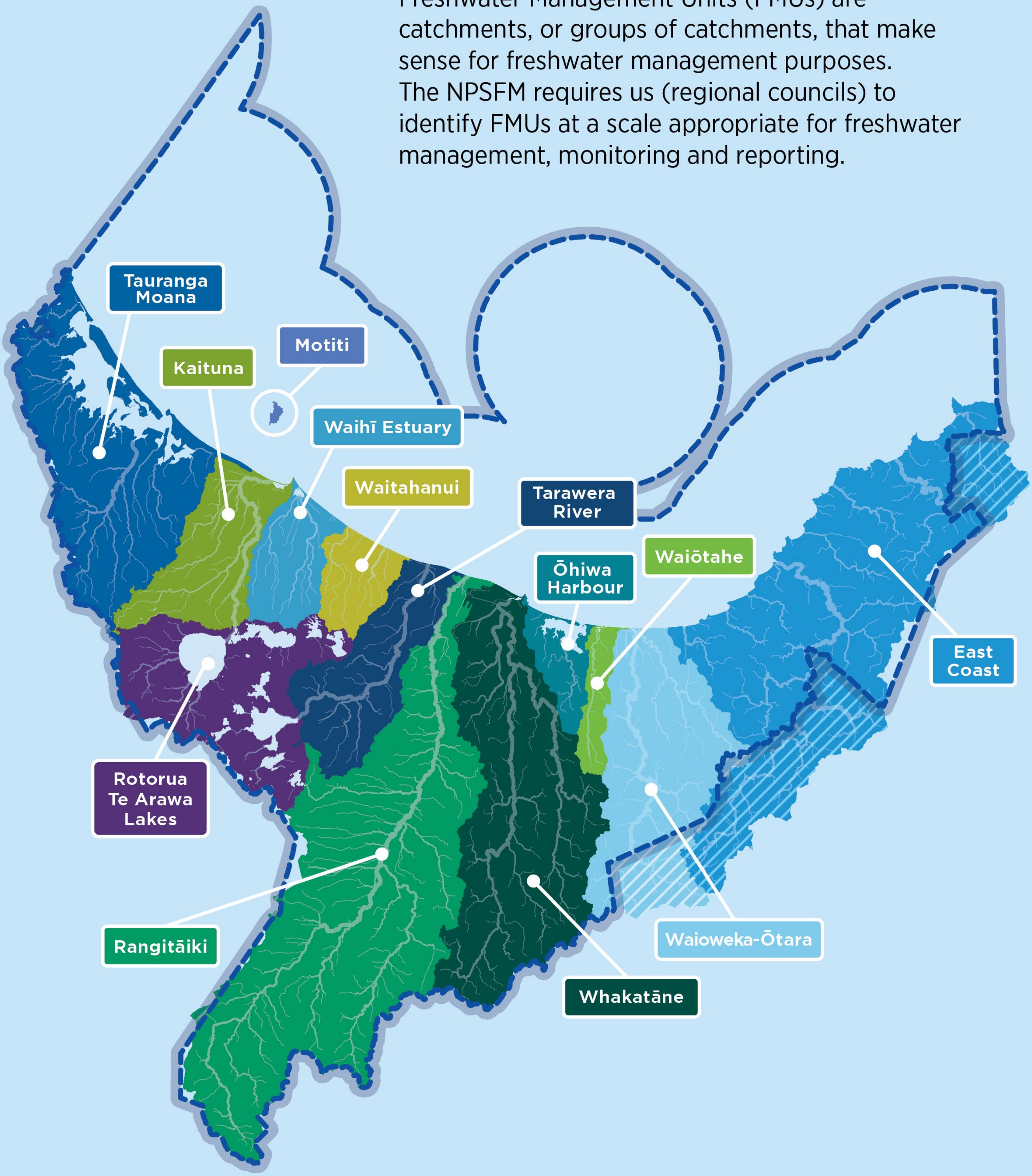
For more info

- Head to **boprc.govt.nz/freshwater**
- Read our Region Wide Overview booklet
- Sign up to receive our Freshwater Flash e-newsletter at **boprc.govt.nz/newsletters**
- Follow our social media
- Visit **participate.boprc.govt.nz**

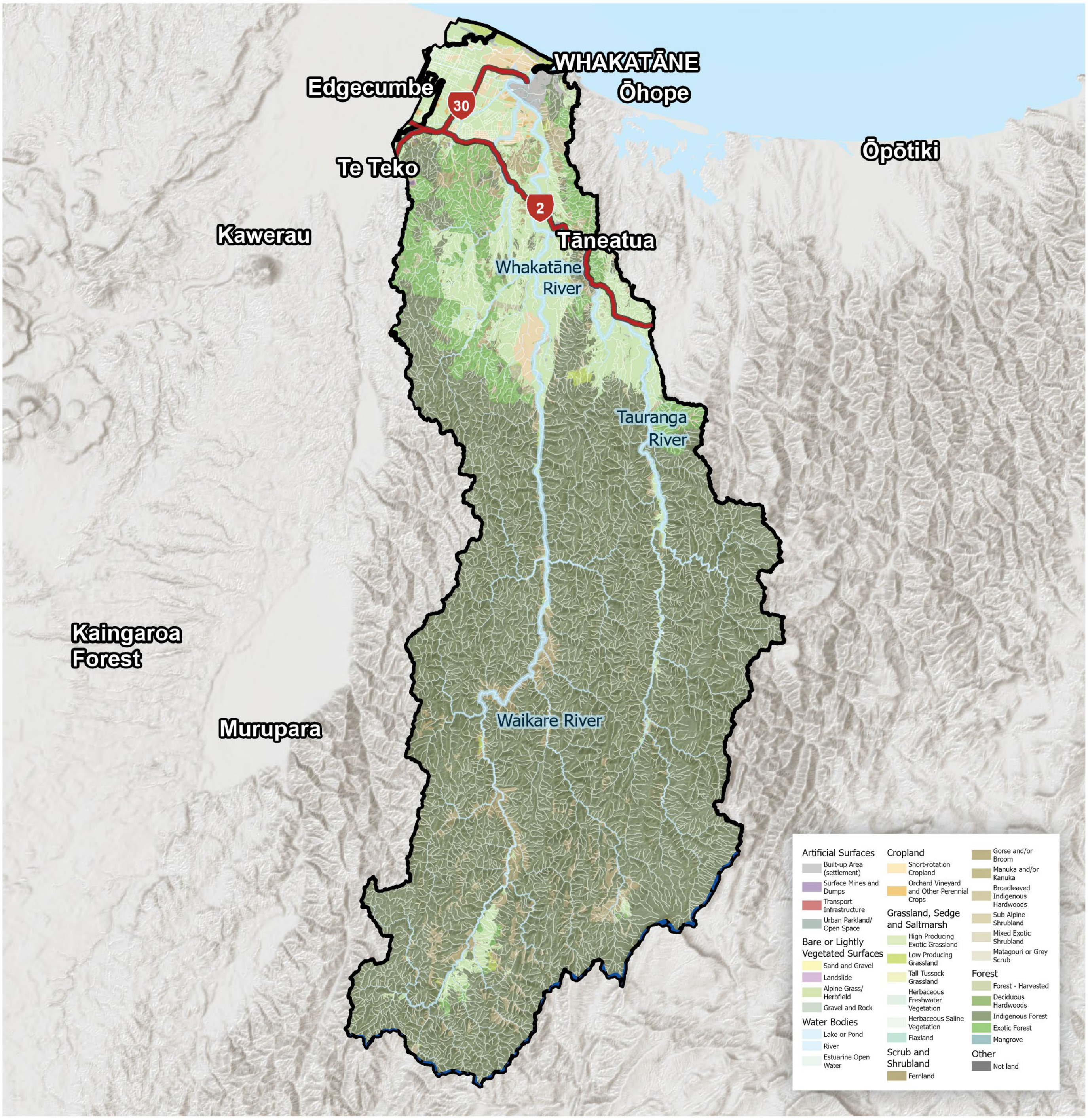
Ngā tauira o ngā rōpū whakahaere o te wai māori

Draft Freshwater Management Units

Freshwater Management Units (FMUs) are catchments, or groups of catchments, that make sense for freshwater management purposes. The NPSFM requires us (regional councils) to identify FMUs at a scale appropriate for freshwater management, monitoring and reporting.



We are proposing 13 Draft FMUs in our region, based on surface water catchments (or groups of these with similarities) and whether they feed into lakes, estuaries, or the ocean. Each Draft FMU has special characteristics (e.g., water body, cultural, community, geology, landform, land use and economic characteristics) that make it unique. Each will have its own chapter in the Regional Plan. The Regional Plan will have region wide rules but may also have rules specific to each FMU. The rules in FMUs may vary depending on the issues faced in that FMU.



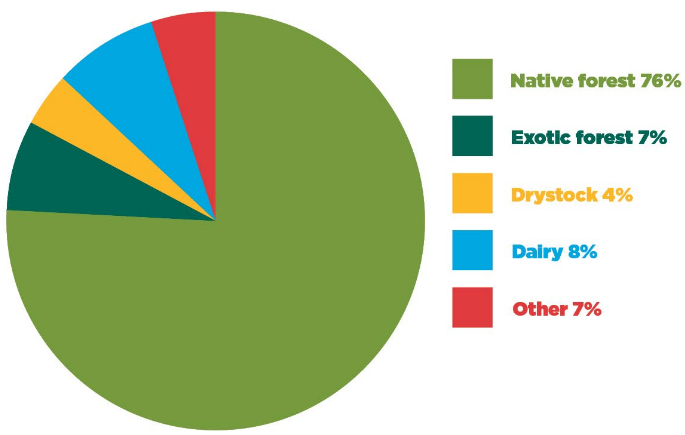
Whakatāne - FMU Map

Land area:

178,284 ha

Population:

21,870 people



Mō te Tauira o te whakahaere i ngā kāhui wai māori o Whakatāne

About the Draft Whakatāne Freshwater Management Unit (FMU)

The Draft Whakatāne FMU covers an area of 178,284 ha. The main tributary of the Whakatāne River is the Tauranga River, also known as the Waimana River. The headwaters of both rivers are high in Te Urewera, near the boundary of the Gisborne region. The Tauranga River joins the Whakatāne River by the town of Tāneatua. The Whakatāne River then flows towards the Whakatāne township before discharging to the sea.

The Whakatāne-Tauranga Rivers Scheme protects the Whakatāne township and lowlands from flooding. There are pump stations, flap gates, culverts and a network of stop banks associated with the flood control and drainage schemes.

The lowlands to the west of the Whakatāne River are part of the Rangitāiki Land Drainage Scheme. The Rangitāiki Plains were formerly wetlands and were channelled and drained in the early 1900s to enable agriculture. Orini Canal, Te Rahu Canal, and Waiohou Stream are modified natural rivers.

Whakatāne Estuary is at the mouth of the Whakatāne River. It was once much larger but has been reduced by extensive reclamation. Freshwater inflows are markedly reduced - the Orini Canal used to flow from Rangitāiki River to the Estuary before the Rangitāiki River was directed to the sea through Thornton cut. River training works have reduced the tidal prism of the estuary, leading to siltation of formerly intertidal areas and further changing the nature of the estuarine habitat.

Question 1 Do you think we have got this draft FMU boundary about right?

Tangata whenua

- There are significant whakapapa, cultural and historical connections and responsibilities for tangata whenua within this FMU who include Ngāi Tūhoe, Ngāti Awa, Ngāti Manawa, Ngāti Whare, Whakatōhea and Te Upokorehe. Just over a quarter of all marae in the Bay of Plenty region are located within this FMU. Māori communities are based around hapū and marae and are very closely connected through whakapapa.
- About 80% of the FMU land area, or about 141,000 ha, is Māori-owned land[1] or part of Te Urewera (which is an entity in its own right, governed by Te Urewera Board). Of this area, native forest is the dominant land use (88%), mainly within Te Urewera.

[1] Māori-owned land being land subject to the Te Ture Whenua Māori Act 1993 or settlement land returned as licensed land, commercial redress, or cultural vesting.

Communities

- As of June 2022, the population of the FMU was estimated to be 21,870, concentrated mainly in the Whakatāne township.
- Community feedback so far has identified human contact, mahinga kai, fishing and drinking water supply values along the Tauranga and Whakatāne Rivers near Tāneatua and Whakatāne. Respondents were generally happy with the current state of freshwater for swimming, boating, fishing, kayaking, paddle boarding, food gathering, and cultural practices.
- Improvements were sought to the Whakatāne River near the Whakatāne township to benefit ecosystem health, fishing, tourism, economic and cultural values.

Land and land use

- 76% of the FMU is in native forest, 8% dairy, 7% exotic forest and 4% drystock. Apart from the pastoral area around Ruatāhuna, the entire upper catchment is forested. Some kiwifruit development is occuring, with potential for more on dairy land.
- Dairy farming and sheep and beef farming in the Whakatāne District are estimated to contribute $120 million and $14 million respectively to the Bay of Plenty's regional GDP in 2020/21. Horticulture and other crops are estimated to contribute $28 million. The Whakatāne FMU contributes towards the Whakatāne District figures along with the Waihī Estuary, Tarawera, Rangitāiki and Ōhiwa Harbour FMUs.

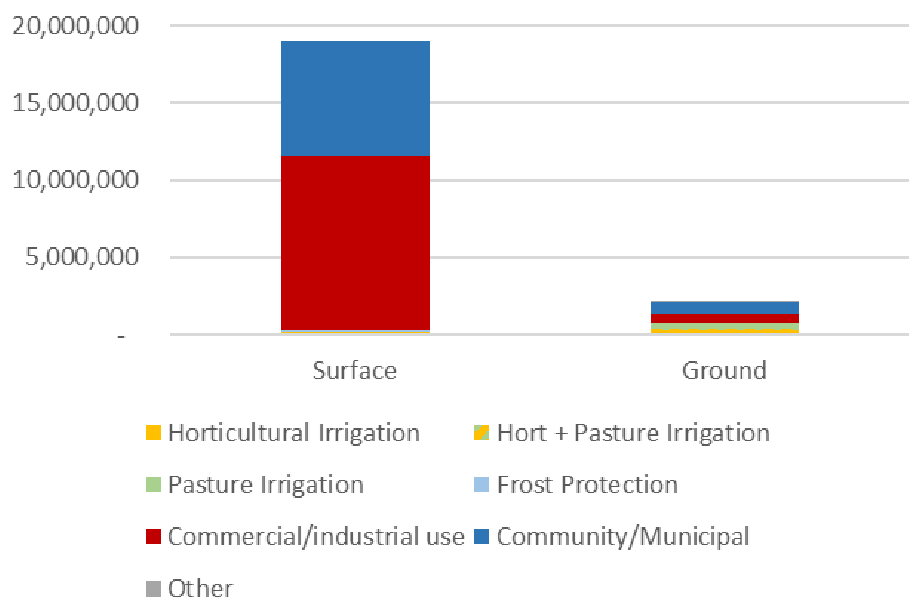
Rivers, streams, wetlands, and estuaries

- This FMU contains the catchments of the Whakatāne (Ōhinemataroa) and Tauranga (Waimana) Rivers.
- There are 106 ha of wetland in the FMU (2% of the historical extent).
- Whakatāne FMU contains 20 freshwater related threatened species (including fish, birds, plants and other animals). Its coastal habitats are recognised for their significance in the Regional Coastal Environment Plan. Fourteen priority biodiversity sites involve a water body within this FMU.
- The upper catchment tributaries of the Whakatāne and Tauranga Rivers are identified as having outstanding natural character. Piripai Distal Point (at the mouth of the Whakatāne River) is identified as an outstanding natural feature and landscape in the Regional Coastal Environment Plan.

Water use, takes and discharges

- Water is used for a variety of purposes. It is used for a range of cultural purposes (such as karakia, iriiri, whakanoa), recreational purposes (such as fishing), mahinga kai and for food production (such as horticultural irrigation, frost protection and stock watering).
- As of January 2022, there were 39 water take consents in this FMU (10 surface water, 29 groundwater). While the majority of consents are for dairy farming and horticulture (irrigation and frost protection), the majority of the consented volume is for municipal supply and commercial/industrial use. This includes a large surface water take consent for the Whakatāne Mill. Pulp and paper product manufacturing in the Whakatāne District is estimated to contribute $44 million to the Bay of Plenty's regional GDP in 2020/21 and the mill employs approximately 160 staff.

- The Whakatāne District Council has consents to take water from the Whakatāne River to supply Whakatāne and Ohope, and smaller community supplies from the Tāneatua bore, the Waimana bore and the Rūātoki bore. The municipal take from the Whakatāne River shifts depending on the location of the salt wedge. Tūhoe Manawaru Tribal Authority Charitable Co Ltd has a water take from a spring at Ruatāhuna village and online community engagement identified a spring near the Tauranga River in Matahī Valley which provides a marae water supply.
- There are two substantial point source discharges into the Whakatāne River - one for the Whakatāne Mill and one for the Tāneatua oxidation ponds (treated wastewater discharge). There are 37 land discharge to land consents, 23 on-site wastewater (OSET) discharge consents and 46 discharge to water consents in this FMU.
- There is one geothermal warm water take consented for Awakeri Hot Springs public pools. The geothermal resource in Awakeri is culturally significant to Ngāti Awa.



Whakatāne FMU Resource Consents to take water – volume m³/year

What is likely to happen with climate change over the medium to long term (mid-late century)?

- With the effects of climate change, reduced summer rainfall and increased evaporation (from land or water) and transpiration (evaporation from plants) may increase water demand while reducing stream flow.
- More frequent extreme rainfall events may result in higher flood flows in summer and winter, and sediment loss from erosion may get a lot worse.
- Land on the lowland plains nearest the coast may become increasingly affected by salinity and wetness, and gradually inundated by the sea, or by higher river levels. Some land use may become less viable or unviable by mid–late century.

Question 2 Does this brief summary about the people, land and water in this FMU seem right to you?

He aha tōu kitenga mō te anamata o te wai māori?

What is your vision for the future of freshwater?

Draft long-term vision for freshwater

A key part of freshwater planning is being clear about what you seek to achieve. A long-term vision for freshwater is required by the NPSFM and must set out what tangata whenua and the community collectively want to see for freshwater in the FMU. Visions should be ambitious but reasonable.

We've drafted some options based on issues and what we've heard from tangata whenua and communities so far.

Option A Freshwater quality and quantity sustains aquatic life and the Whakatāne River and Estuary, as well as the social, cultural and economic wellbeing of current and future generations.

1. Innovative and sustainable land and water management practices support food production, lowland drainage and flood mitigation so that rivers, streams, wetlands and the Estuary are safe for human contact, mahinga kai thrives and the ecosystem health of the canals is enhanced.
2. In Te Urewera, the natural features and beauty, the integrity of its indigenous ecological systems and biodiversity, and its historical and cultural heritage are preserved as far as possible and pest control reduces sediment and E. coli loads into waterways.

This vision is to be achieved by 2040.

Option B Ensure water quality and quantity in rivers, streams, wetlands and the estuary can sustain the wellbeing of all human and living beings. Within the Whakatāne FMU:

1. Restore and enhance the health and diversity of ecosystems and habitats for our taonga flora and fauna species.
2. Provide healthy and abundant mahinga kai resources.
3. Provide safe swimming, mahinga kai and indigenous habitats in the Whakatāne Estuary.
4. In Te Urewera, the natural features and beauty, the integrity of its indigenous ecological systems and biodiversity, and its historical and cultural heritage are preserved as far as possible.

The vision is to be achieved by 2040.

Question 3 As a draft vision do you prefer Option A or B?

Draft values and environmental outcomes

The NPSFM uses the term "values" to refer to important aspects of freshwater that need to be provided for. We must manage freshwater to protect compulsory freshwater values and must also consider other values if present. We must set environmental outcomes for these values.

We have used tangata whenua and community feedback as well as our own research to identify the values we think matter most in this draft FMU. Feedback we received suggested people wanted water quality maintained, or improved where degraded, to sustain the lives of future generations and fisheries, and that water suitable for human contact activities without the risk of getting sick was important. Concern was raised about erosion of Governors Pool in Matahī Valley. The importance of managing and protecting the Whakatāne drinking water supply was identified by multiple respondents.

Water is valued as a resource in marae and households, as drinking water for animals, for irrigation and food production, and for commercial uses. It sustains the large and many smaller communities in this FMU.

The following table contains some draft outcome statements, based on what we have heard so far.

Freshwater Values *The ways fresh water is important* *Shaded values are compulsory national values in the NPSFM*	**DRAFT Environmental outcome** *How we would like the values to be*
Ecosystem health	Water quality is maintained or improved, where degraded, to sustain aquatic life and the Whakatāne Estuary. The volume and flow of freshwater bodies sustains aquatic life. Restore and enhance the health and diversity of ecosystems and habitats for taonga flora and fauna species in the lower catchment. The diversity and abundance of desired aquatic species and birds is maintained or improved, and aquatic pest species are controlled. Restore, protect and enhance the wetlands and protect the health and natural functioning of key components and processes.
Human contact	Water quality is maintained or improved to be suitable for swimming with a low risk of getting sick and access along river edges is maintained or enhanced for recreational opportunities. Te Urewera is a place for public use and enjoyment, for recreation, learning, and spiritual reflection, and as an inspiration for all.
Threatened species	Protect critical habitat to support the presence, abundance, survival, and recovery of threatened species.
Mahinga kai	Water is suitable to sustain plentiful mahinga kai species which are safe to eat, within rivers and streams. Customary use of indigenous species in accordance with tikanga is recognised and provided for. Taonga species are protected and restored, and their cultural health and continuation of

Freshwater Values *The ways fresh water is important* *Shaded values are compulsory national values in the NPSFM*	**DRAFT Environmental outcome** *How we would like the values to be*
	associated mahinga kai practices and tikanga are provide for. Wetlands are established above Pekatahi as a source of kai. Restore and protect the mauri of freshwater resources.
Natural form and character	Preserve indigenous vegetation including the natural features and beauty of Te Urewera, the integrity of its indigenous ecological systems and biodiversity.
Drinking water supply	People have sufficient, reliable, and safe water for drinking and reasonable domestic use, to the extent possible and subject to providing for the outcomes shaded above.
Wai tapu	Wai tapu and sites of cultural significance, and the tikanga associated with these sites and waters are protected.
Transport and tauranga waka	Maintain access to and along rivers and streams of cultural importance. Ensure the continuation and protection of tikanga associated with these sites.
Fishing	Restore and enhance freshwater fisheries resources and habitat.
Animal drinking water	Farmed animals have sufficient, reliable, safe, and palatable drinking water, to the extent possible and subject to providing for the outcomes shaded above.
Irrigation, cultivation, and production of food and beverages	Reasonable and efficient irrigation and food processing freshwater needs are provided for with an adequate level of reliability, to the extent possible and subject to providing for the outcomes shaded above.
Commercial and industrial use	Reasonable and efficient commercial and industrial freshwater needs are provided for with an adequate level of reliability, to the extent possible and subject to providing for the outcomes shaded above.
Geothermal warm water	Protect and enhance the mauri of significant geothermal warm water resources from the cooling effects of activities and allow for efficient uses that require heat/and or heated water.

Question 4 What do you think of the draft values and outcomes identified for this FMU?

Te kounga o te wai me te oranga o te pūnahi hauropi

Water quality and ecosystem health

The vision, values and outcomes give a sense of where we want to be. How hard it is to get there depends very much on where we are right now. The things we do on the land can affect river, stream, wetland and estuary health. We measure lots of different things to check the health of the environment- these are called attributes. The state given below is what it was like in September 2017 – called baseline state as defined in the NPSFM. The NPSFM has a grading system for each attribute. The grades are A-D bands. A band = very good state, D = poor state. The trend tells us whether it is getting better or worse over time.

River and stream water quality for ecosystem health

The main water quality attributes we measure in rivers and streams are the contaminants of concern for most areas, the nutrients nitrogen and phosphorus, and sediment. Find out more about how we monitor river health, here.

Bay of Plenty Regional Council has four monitoring sites in this FMU to measure states and trends in river and stream water quality. In areas where we don't have enough monitoring data, river health has been estimated by an Expert Panel using the best information available. This gives us an indication of the water quality state and helps us identify where changes may be needed to meet environmental outcomes. The NPSFM requires us to take action and make improvements if water quality is below a national bottom line or is degrading (shows a worsening trend over time), unless this is due to natural causes.

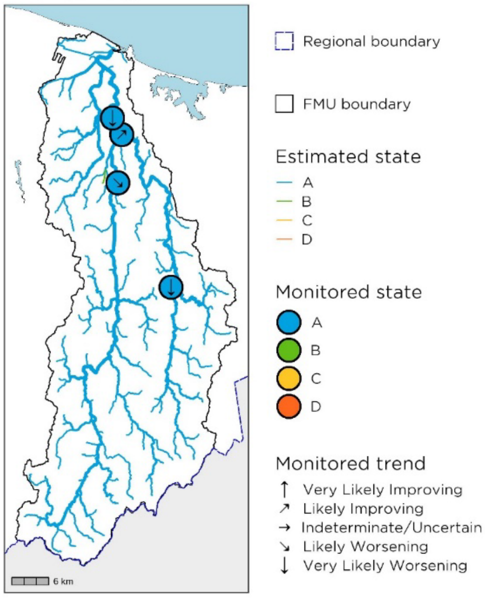
Measured nitrogen concentrations are in the A band, well below levels that can have toxic effects, but are showing worsening trends. Nutrients like nitrogen and phosphorous can promote plant, weed and algal growth and contribute to the poor health in estuaries.

Measured dissolved reactive phosphorus concentrations are high (in the D band) and do not meet the national bottom line, but are showing some improving trends. The high phosphorus level is likely from the volcanic influence in the area, although human activity will be adding to this.

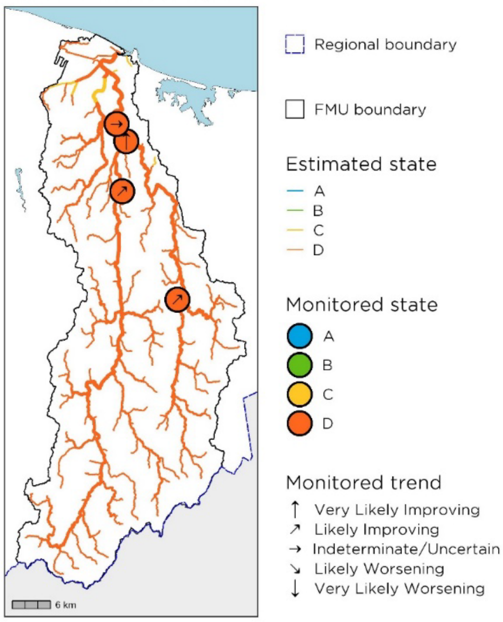
Elevated suspended fine sediment measures illustrate potential erosion in the upper catchment where one site is in the D band, while all other sites are in the C band. This is not currently a problem, and mud content in the estuary is relatively low, but trends are worsening across this FMU.

In addition to these monitored sites, some surveys of lowland drainage canals show quite poor water quality.

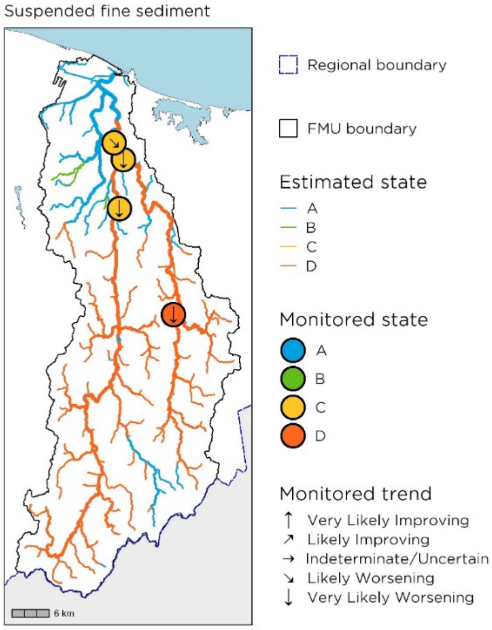
Nitrate (toxicity)



Dissolved reactive phosphorus



Suspended fine sediment



River and stream aquatic life for ecosystem health

The main aquatic life attributes we measure are fish, macroinvertebrates which include worms, snails and insects, both in their immature larval phase, and as adults (e.g., mayflies, caddisflies, beetles), and periphyton - algae and fungi that grow on the beds of our rivers, lakes and streams and can make it slippery and slimy. For ease of interpretation, invertebrate data is simplified as special indices such as the Macroinvertebrate Community Index (MCI). The Macroinvertebrate Community Index (MCI) is based on the tolerance or sensitivity of species to organic pollution and measures the presence (or absence) of invertebrates. Higher MCI scores indicate better stream conditions at the monitoring site. Two other indices are also used to describe macroinvertebrate health – the quantitative MCI and Average Score Per Metric; check out our Water Ecology Tool at www.boprc.govt.nz/wet for more information.

Fish surveys show 16 fish species recorded in this FMU; 13 of these are native. Longfin and shortfin eels, redfin and bluegill bullies, torrentfish and inanga were the most common. Threatened fish species include shortjaw kōkopu, which has a wide distribution in this FMU. All of these native fish are migratory, meaning any barriers could have a large effect on fish. This is particularly relevant in the lower parts of the FMU where pump stations and floodgates are present. Four species of introduced fish are found in this FMU, including rainbow and brown trout, goldfish and mosquito fish.

The Council has 12 macroinvertebrate monitoring sites in the Whakatāne FMU to measure state and trends in river health. A wide range of MCI state bands have been observed (A-D bands), even in relatively unmodified catchments. Many of the highly degraded streams were found in low lying agricultural catchments.This reflects the lack of habitat features such as rough stream beds and banks, meandering channels, and overhead vegetation.

Nutrients like nitrogen and phosphorous can promote plant and algal growth (periphyton) in rivers and streams, and estuaries. Six sites are monitored for periphyton biomass in this FMU. Five were in the A band one was in the B band. This suggests there is not a significant problem of excess algae in the monitored waterways.

Human contact

Elevated levels of faecal bacteria from animal dung, human wastewater and birds can make water unsafe for people to swim in or gather kai from. This is often used as a measure of 'swimmability'. *E. coli* is the bacteria we measure in rivers and lakes as an indicator of microorganisms that could be present. Faecal coliforms and *enteorococi* are the bacteria we measure in estuaries and the sea. Find out more about how we monitor river health, here.

The Council has three monitored recreational bathing sites in the Whakatāne FMU. The two upper catchment sites are in the B band. In the lower catchment, Whakatāne at Landing Road is in the C band. This means that most of the time over summer water quality is safe for swimming, but it is sometimes impacted by faecal contaminant runoff from the catchment or discharges from industrial activity and sewerage plants. There is a higher risk of getting sick if you swim or wade after rainfall.

There are no shellfish monitoring sites in the Whakatāne Estuary due to the limited extent of those resources.

Mahinga kai

The mahinga kai compulsory value includes the freshwater-related plants and animals that tangata whenua traditionally subsisted on, the places these are harvested from, the traditional materials sources from the envirromment and the tikanga (practices) of collecting or harvesting them. This value is demonstrative of tangata whenua connections, responsibilities and kaitiakitanga obligations. It is important because the loss of these species and associated tikanga can have a profound effect on tangata whenua who rely on them.

The Whakatāne River is valued as a source of food including eels, kākahi, oysters, fish, and whitebait. Inanga, kōkopu and kōaro were a valued food resource near Ruatāhuna.

We recognise the importance and value that tangata whenua and kaitiaki in the FMU place on mahinga kai, traditional material sources and gathering sites throughout the FMU. Identifying these and understanding how tangata whenua and kaitiaki understand, assess and care for wai māori is critical to understanding and providing for the health of the mahinga kai compulsory value.

Where do contaminants come from?

All land uses contribute nitrogen, phosphorus, suspended sediment and *E. coli*, but dairy is estimated to contribute a disproportionately high amount of the total nitrogen and total phosphorus for its land area. While native forest land use is estimated to contribute a significant portion of the total nitrogen load, this is only because of the very large proportion of land area that is native forest. Point source discharges do not contribute much of the total nitrogen, phosphorus, sediment or *E. coli* at a catchment scale, but can have localised effects.

Native forest is estimated to contribute the majority of the total suspended sediment and *E. coli* loads. This is because native forest covers the biggest part of the catchment and often occurs on steeper areas which can have higher erosion and runoff. Feral animals (goats, pigs, deer) can contribute to eroson and faecal contamination. Dairy farming is estimated to contribute disproportionately high *E. coli* load compared to its land area.

Sediment is generated from erosion processes as well as land disturbance. Shallow landslide is the dominant erosion process, followed by channel bank erosion.

Freshwater health issues for this FMU

Nitrogen and phosphorus levels are relatively low in the Whakatāne and Tauranga Rivers and Whakatāne Estuary, and do not appear to be affecting river or estuary values. However, several monitoring sites have increasing amounts of nitrate and phosphorus over time, so action may be needed to halt any further increases.

Mud content in the Whakatāne Estuary is currently not a problem. However, suspended fine sediment is elevated at River monitoring sites, trends appear to be worsening and this is expected to get worse over time with climate change. There is potential to do better at keeping sediment on rural land and out of streams. Likewise, feral pest control in native forest would also be beneficial.

Lowland, heavily modified streams (Orini, Te Rahu, Waioho) have degraded water quality, ecosystem health, cultural values and natural character.

While these canals have not been monitored over the long term, our short-term monitoring clearly illustrates these issues. The lower Whakatāne River is also heavily modified. There are generally high nutrient levels, high turbidity, extreme levels of DO (both high and low), elevated temperatures, relatively low MCI and QMCI. Nitrate and ammonia increase with rainfall. Habitat features that support ecological health are generally absent. The sources/causes are primarily land drainage in the catchment, and nutrient, sediment and bacterial loads from surrounding rural land uses. Although the land drainage canals have been managed primarily for drainage, they are modified natural streams, and the NPSFM requires the Council to set targets for them. They also ultimately flow into waters where people swim and take food.

Water quality at monitored bathing sites is generally safe for swimming but at times is not, due to faecal contaminant runoff from the catchment, particularly during and after heavy rainfall. While forested areas are estimated to contribute the majority of the total load from the catchment, it is estimated that high loads are delivered from lowland farmed areas, via the drainage network during rainfall.

Existing discharges from industrial activity, urban stormwater, and urban treated wastewater contribute *E.coli* and other contaminants to local streams from point source discharges, although, in total these are not estimated to be large contributors on a whole of FMU scale.

Cultural indicators of health. We know there will be important cultural indicators that can provide a deeper understanding of wai ora. Identifying these and understanding how fresh water supports the cultural health and wellbeing of tangata whenua and how they understand, assess and care for wai māori is in relation to their cultural health is critical to understanding and providing for the health of the mahinga kai compulsory value.

Question 5	Does this brief summary about water quality in this FMU seem about right to you?
Question 6	How satisfied are you with the water quality in this FMU?

What are we aiming for?

The NPSFM requires us to set targets for water quality that are at least as good as the baseline state of the rivers and better than the national bottom lines set in the NPSFM. These targets are the specific, measurable levels of water quality or ecosystem health, which will help us to achieve the environmental outcomes (on previous page).

Several attributes at long term monitoring sites are in the A band (nitrate, ammonia, and suspended sediment) and this needs to be maintained. It is estimated that in lowland modified streams (Orini, Te Rahu, Waione) these attributes will need to improve.

Targets for aquatic life attributes will see a need to restore habitat and aquatic life in the lowlands.

Improvement targets will need to be set for *E. coli* bacteria.

From feedback we have received to date, we anticipate tangata whenua and communities will want:

- To achieve A or B band state for all attributes if this is achievable.
- To apply a reasonable timeframe to achieve this, so that any land and water users who need to make changes have time to transition. For example, if the target is to keep current water quality, and the trend is not getting worse, the timeframe could be immediate or up to five years. If the target requires more change, more time might be needed.
- To accept C band state or worse only if that is naturally occurring, or if climate change predictions suggest no better can be achieved.

Indicative scale of nitrogen, phosphorus, sediment and *E. coli* load reduction needed to improve water quality and meet draft environmental outcomes.

Nitrogen	Phosphorus	Sediment	*E. coli*

KEY: Indicative scale of change needed to improve water quality, or likely water quantity constraint.

Small | Moderate | High

How can we meet the outcomes and targets we set?

The outcomes we set for freshwater will be met via a mix of voluntary measures (things people choose to do themselves), investment and works/actions by Council, regulations the government has set that everyone must follow, and extra rules Bay of Plenty Regional Council sets in the Regional Plan. The rules we set in the Regional Plan will be where these are the most appropriate way to address remaining issues that are not likely to be addressed by national regulations.

Regional Councils must implement national regulations relating to freshwater (via consents, monitoring, and compliance). We cannot change these but can make additional rules if we think they are needed to address local issues. It is important to have a sense of what national regulations currently say:

National regulations for freshwater

Current national regulations require:

- Stock exclusion (with a 3 m buffer) from large rivers (>1 m wide), lakes and wetlands for dairy cattle on all terrain, and for drystock on low slope land (<5 degrees).
- Controls on activities within and close to waterbodies.
- Feedlots and stockholding area requirements: sealed; effluent collection, storage and disposal; 50 m setback from rivers, lakes, wetlands, bores, drains and the coastal marine area.
- Cap of 190 kg/ha/yr on the amount of synthetic N-Fertiliser applied to dairy farms, along with reporting requirements.
- Controls on intensive winter grazing on forage crops – subject to conditions or consent required.
- Consent required for substantial land use change from forestry to pasture, anything to dairy or dairy support, or extending the irrigated area within dairy farms (provisional rule expires 2025).
- Plantation Forestry: a number of practice requirements, including setbacks from rivers, lakes and wetlands, and requirements relating to earthworks, harvesting, slash and other activities.

Pending national regulations in 2023 are:

- Certified Freshwater Farm Plans will be required for all farms over 20 ha and horticultural enterprises over 5 ha. Farm operators will need to identify activities that pose a risk of contaminant loss and identify actions to reduce risks.
- New regulations requiring Regional Councils to control activities in drinking water source protection areas.

Draft water quality management options

National regulations are considered likely to make good progress towards the outcomes sought. Additional options we are exploring across the region, or specifically for this FMU include:

- Using Freshwater Farm Plans, require good management practice, set some minimum standards, and seek continual improvement to address rural land use practices that pose a high risk of sediment, nitrogen, *E. coli* and phosphorus loss.

- Requiring no net increases in *E. coli*, nitrogen, phosphorus, or sediment as a result of future land use and practice change (this may require offsetting). However, some consideration is also being given to ways to enable some development of underdeveloped Māori land over time.
- Gathering farm data on stock, feed, fertiliser and other farm and horticulture nutrient inputs, and consider setting a cap on high nutrient inputs.
- Controlling intensive grazing that removes vegetation cover and cultivation, including active management of Critical Source Areas (e.g., overland flow paths), in a similar way to national Intensive Winter Grazing Regulations.
- Exploring and encouraging physical technological solutions such as treatment of drain water, treatment wetlands, and sediment control bunds in appropriate locations.
- Encouraging restoration of in-river habitat, and river margin habitat, including fish passage.
- When point source discharge consents are renewed, strengthen conditions, including better discharge water quality, regular impact monitoring and reporting of key contaminants.
- Require lined animal effluent storage and set effluent irrigation rate, timing and volume requirements.
- Requiring consents for pumped drainage discharges and applying a best practicable option approach to reduce contaminants and restore habitat and fish passage over time.
- Encouraging stock exclusion from all rivers, streams and drains (in addition to those where it is required by national regulations) and requiring stock exclusion from large rivers and drains (>1 m wide). Maintenance of a thick grass sward on margins and/or planting of one side of drains and canals to provide shade and bring down water temperature. Require temporary stock exclusion from flow paths in the lowlands when wet.
- Encouraging retirement of steep (>25 degrees), erosion prone land to native trees, or removal of heavy stock.
- Requiring plantation forestry management plans at the time of afforestation to address sediment loss during and after forest harvesting.
- Encouraging feral animal control in native forest to maintain river ecosystem health and reduce sediment and *E. coli* losses.
- Encouraging retirement of land that is currently affected by salinity.
- Enabling land use change to land use that will contribute less contaminants and, in the lowlands, are appropriate to future wetter conditions.

Before any of these suggestions are proposed as rules in our regional plan, we need to assess their appropriateness, effectiveness, efficiency (including costs and benefits) – a big part of that is understanding what you, as part of the community, think about them.

Question 7	Does our approach to setting the water quality targets seem about right to you?
Question 8	On balance, what is a reasonable timeframe to achieve these water quality targets for this FMU?
Question 9	Do you support the suite of draft water quality management options being considered for this FMU?
Question 10	What minimum good land management practice requirements do you think we should consider in this FMU?

Te nui o te waipapa me te tukunga

Surface water quantity and allocation

Surface water is the water that flows in rivers, streams and lakes. Across the region, water is taken for different uses, and is usually taken with a pump connected by pipe to rivers and streams.

What are we aiming for?

How much water we take from rivers and streams for people to use will affect how much water is left for native fish, macroinvertebrates (and also trout where they exist) that depend on it for their survival, and for in-river cultural, recreation and other uses.

One of our main aims with water quantity is for people to know how much water is available to be used without causing in-river harm. We do that by managing water takes to ensure plenty of water remains to sustain habitats for the fish that live in rivers and streams, and generally thereby protect other values too.

The NPSFM hierarchy of obligations prioritises the health and well-being of rivers, streams, lakes, wetlands and groundwater first, then human health needs, and then ability of people to provide for social, cultural and economic wellbeing.

One of the ways we can do this is to protect native fish populations by setting limits on the total amount of water that can be allocated from each river and stream for people to use, and setting minimum flows, where users have to stop taking water if rivers and streams get too low. These limits can have a big influence of the health of rivers and streams, the things living in it, on the community, economic development and possible land use in the catchment.

How can we meet the outcomes we seek?

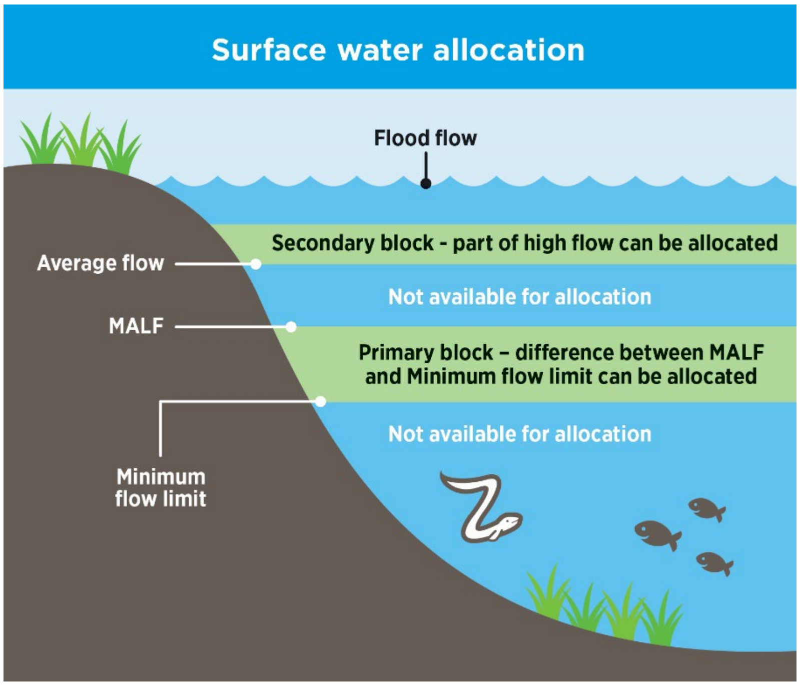
Our main tool for managing water quantity is the setting of minimum flows (limits to achieve the desired level of environmental protection).

Some rivers and streams are relatively resilient, and more water can be taken without affecting/damaging/stressing ecosystems, whereas others are more sensitive. Likewise, some fish prefer deep, fast flowing water and others prefer slower flowing, shallower rivers and streams.

Currently a ‘one size fits all’ approach is used to set limits for surface water takes from most rivers and streams in the region. This approach has a default minimum flow of 90% of the 1 in 5-year low flow (the average of the lowest flow recorded in a rolling 5-year period) and an allocation limit set at 10%.

In the Whakatāne FMU, we have two river and stream specific scientific studies to help us understand the likely effects of different water levels on the different fish populations in each river and stream. We are using this information to draft new minimum flow limits for individual rivers and streams, based on achieving a consistent level of habitat protection for native fish (and sometimes trout).

For rivers and streams where such studies are not available, we’ve based the limits on our knowledge of river or stream characteristics and the results of other studies.



The above figure shows how the minimum flow limit, primary allocation block and secondary allocation block relate to the flow in rivers and streams. Mean Annual Low Flow (MALF) is a commonly used measure that describes the average amount of water expected in rivers and streams during times of low flow. It is calculated by averaging the lowest weekly flow in each year of the flow record.

If people are allocated or authorised to take more water than the total allocation limit, rivers and stream are over allocated. The NPSFM requires us to not allow over allocation. While nobody wants to be told to stop taking water, especially during a drought, there is a trade-off between managing effects on the health of rivers and streams (constraining takes at the minimum flow), the amount of water available for people to use (allocation limits), and how often restrictions are needed (reliability).

Habitat retention levels

With a lot riding on the limits we set, we need to get them right. A key part of the consideration is what level of habitat protection we want i.e. at times of low flow, how much stress should organisms living in rivers and streams experience (they will be used to some stress from natural causes).

A proposed habitat retention level we are aiming to achieve by setting these minimum flows is shown in the table below. The suggested levels for target native fish species are based on our understanding of how flows affect these fish species, and how scarce and vulnerable or resilient the species are. For example, shortjaw kōkopu and giant kōkopu are threatened species that are scarce and vulnerable, so the highest retention level is proposed, where these fish occur. Note that native fish generally need less flow while trout need more. Tuna (eels) in particular can live with a wide range of flow.

We know other considerations may be needed too, including ensuring flows support mahinga kai, cultural or recreational values. For example, where trout are in a river or stream, we suggest setting habitat retention levels for those to provide for fishing values, so these are in the table below as well.

Target Species	Habitat retention level
Shortjaw kōkopu	100%
Giant kōkopu	100%
Other kōkopu species	95%
Kōaro (adult)	90%
Inanga	90%
Bullies (excluding bluegill)	90%
Eels (tuna) juvenile	80%
Eels (tuna) adult	75%
Torrentfish	70%
Bluegill bullies	70%
Trout	95%

Question 11 We are moving to limits on water takes based on habitat protection for fish. Does this seem the best approach?

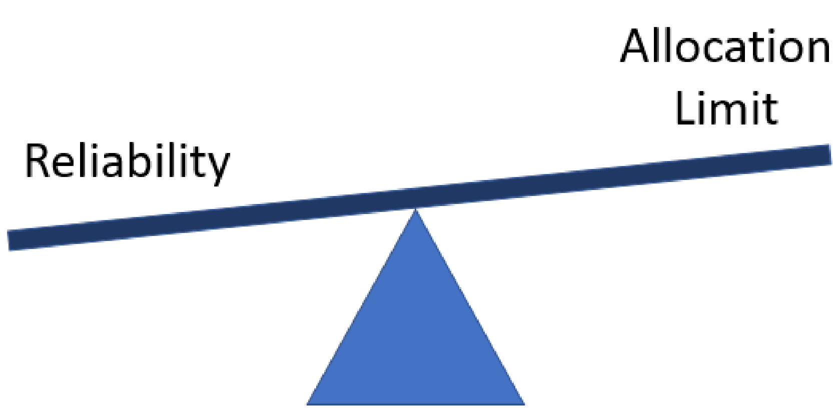
Water use

Once we've identified the minimum flow to protect the habitat for selected fish, we need to decide how much water is available to allocate to users.

The current default allocation limit is currently set at 10% of the 1 in 5-year low flow. Based on the current default allocation limits, several rivers and streams are currently considered over allocated in this FMU.

Reliability is a measure of how often authorised water users have to stop or reduce their water take (because rivers and streams are or would fall below the minimum flow). The higher the minimum flow, the more likely rivers and streams will fall to that flow due to natural conditions and the more frequently taking water will be restricted or stopped. The more water we allocate, the less reliable it is (the more often we need to restrict or stop water takes).

A study of flow patterns in the region's gravel bed rivers and streams (such as found in the Whakatāne FMU) found that if the minimum flow was 90% MALF there would be an average of 14 days per year that flow falls below this level, and no water would be available to take. In very dry years, the number of days below 90% MALF might be over 100.



A balancing act: With a set minimum flow limit, there is a trade-off between the amount of water allocated for use and the reliability of water availability.

Question 12 Do you support or oppose the idea of encouraging more users to store water after heavy rainfall to help us all get through periods of drought?

Question 13 If you had to choose between a reliable water supply but very little water available and more water available but unreliably, which would you prefer and why?

Question 14 Sometimes our surface water challenges are because people take water at the same time. How willing would you be to work with others in your area to ensure water is taken from your stream(s) at different times?

Question 15 When the minimum flow is set at a high level, there isn't much water available to allocate and reliability is likely to be poor. Would you support reviewing the habitat retention levels of fish in over allocated catchments to increase the amount of water available for allocation?

Surface water quantity issues

The draft Whakatāne FMU is important from a water quantity perspective because it supports both municipal use and a large industrial use.

Parts of the FMU are identified by Fish and Game as important trout fisheries and spawning areas and the draft minimum flow relates to providing 95% habitat protection level to trout.

While the Whakatāne River is not over allocated as a whole, Whakatāne District Council does have to manage their take location based on movement of the saline wedge up-river in periods of lower flow. Management of takes and minimum flows is important.

Additional evaluation of how the minimum flow affects reliability may be needed, especially given the relatively high minimum flow and importance of dominant uses.

Question 16 Does this brief summary about water quantity in this FMU seem about right to you?

Surface water quantity options

In the past, we used a single allocation block (10% of the 1 in 5-year low flow) because we didn't have enough information to do better. Now that we have more information about our rivers, we can approach allocation differently. In some areas habitats will now need to be better protected, and in other areas more water will be available to use. We are now considering key options for setting allocation limits.

Option set 1: Choosing Habitat Retention Levels (minimum flows)

The first set of choices we need to make concerns the level of protection we give to the main fish present in the river.

Essentially, we are keen to know what you think of the Habitat Retention Levels in the table above. We could make them more protective, which would mean water takes would have to be restricted or stop more often, or less restrictive, posing a risk that low flows may reduce usable habitat for some fish.

An alternative to setting the minimum flow (ecologic minimum flow) using trout and native fish habitat retention levels in the table above, is to meet the habitat retention level for native fish species and a slightly lower habitat retention level for trout. This reduces the minimum flow.

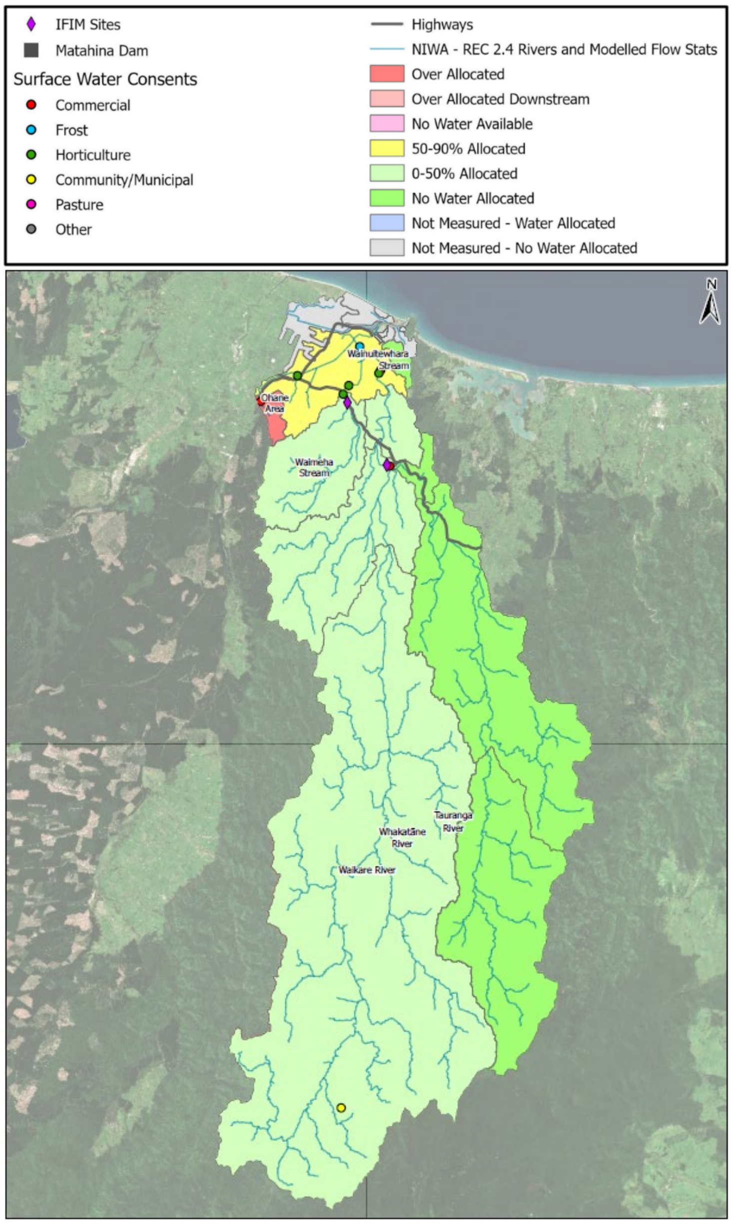
Option set 2: Deciding how much water can be allocated (primary allocation)

Our next choice concerns how much water to allocate and the effect of this on reliability for users. We propose that the allocation limit should be the difference between the Mean Annual Low Flow (MALF) and the ecological minimum flow (that provides the habitat retention levels noted above. The map on the following page shows the allocation status using this option.

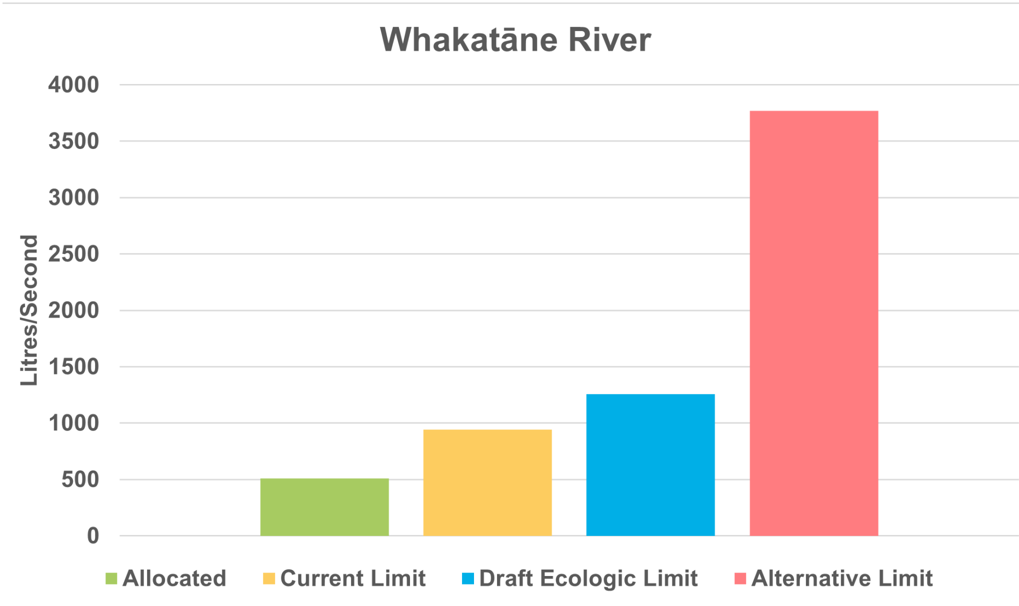
An alternative allocation limit could be set using the difference between MALF and the alternative minimum flow. This would improve reliability (less days when takes would have to be constrained or stop) and makes more water available for allocation.

Option set 3: Primary and Secondary Block

We could allocate a lot more water if we allocate a secondary block that can only be taken during periods of high flow. In this situation, users of the secondary block would probably need storage dams to provide reliable access to water during dry periods, because there will be more days when the allocated water cannot be taken. This may not be necessary in this FMU.



Allocation status based on draft ecological minimum flows, and a draft ecological allocation limit that is the difference between the Mean Annual Low Flow and ecological minimum flow.



Total water currently allocated to water users, current allocation limit (default allocable flow in the current Regional Plan), draft ecological allocation limit (total allocable flow using the difference between the Mean Annual Low Flow and the ecological minimum flow), and an alternative allocation limit using alternative minimum flow (that provides less habitat retention for trout).

Question 17 We have options to set water allocation limits for a catchment that are complex and species and area specific or more generic, simple and region wide. Which approach to water allocation limits do you prefer and why?

Question 18 A small number of catchments in the Tauranga Moana, Kaituna, Rangitāiki, and East Coast FMU's are currently over allocated. We may need to claw back or reduce the overall water allocation in some catchments. How do you think we should approach this i.e. prioritise particular uses, timeframes for transition?

Te nui o te wainuku me te tukunga

Groundwater quantity and allocation

Groundwater is the water that flows underground – through gravels, sand, mud and between the crevices in rocks. Groundwater can be taken for irrigation or storage and can usually only be accessed via a bore drilled into the ground. In general, groundwater is more costly to access than surface water, especially if it is difficult to find or extract.

We manage groundwater differently to surface water. For groundwater, our focus is much more on the annual volume of water taken, while the surface water we are concerned about the rate of take at any one time. However, our concern for groundwater takes, also relate to how they will affect surface water features such as wetlands, rivers and streams.

The majority of the Whakatāne FMU is underlain by basement rock with very poor water yield. Other than in local fracture systems the availability of water from these systems is limited.

Where it is taken, groundwater is generally abstracted from the sedimentary deposits – for example alluvial material from the Whakatāne and Tauranga River inland sedimentary basins. A deeper sequence of volcanic, marine and alluvial deposits is also present in the section of the FMU coinciding with the Rangitāiki Plain. Inland from Whakatāne there is a thin ignimbrite layer that is likely to be of insufficient thickness to provide useful quantities of groundwater.

Issues

Current consented groundwater abstraction in the Whakatāne FMU is confined to areas where suitable aquifers coincide with demand. Although total allocation (2.5 M m^3/year) is relatively low considering the large extent of the FMU (1,781 km^2), recharge to all but the inland basins and coastal plain is likely to be very low.

Issues in this FMU include:

- The possibility of stream depletion associated with abstraction from shallow sedimentary aquifers (not such an issue in this FMU due to streams having allocation capacity).
- Saline intrusion risk from large or concentrated takes near the coast.
- Limited groundwater capacity in inland parts of the FMU.

Policy options

Efficient Use. Across all FMUs consideration is being given to how to achieve more efficient use of freshwater; i.e. ensuring water allocation (what we consent) more closely matches need (what is used). This is because allocation status (whether an area is overallocated or not) is calculated based on what is allocated and theoretically able to be used (not what is actually used).

Groundwater Management Zones. Next steps for this FMU include developing new Groundwater Management Zones within which allocation limits are set. Given the potential for some localised areas of depletion, care will be needed to ensure these zones appropriately balance the need for administrative simplicity, equity and risk. How these zones are formed is something we want feedback on. It is likely allocation limits will need to be set conservatively near the coast to avoid cumulative saline intrusion.

Saline intrusion. The risk of saline intrusion is greatest near the coast where consideration will need to be given to possible restrictions and monitoring requirements. Precisely how saline intrusion is to be managed depends to some extent on modelling in others part of the region – which may help confirm a standard approach, and peoples preference for different possible approaches. The sorts of options possible include:

- Restricting takes within a certain distance of the sea, or in a particular aquifer.
- Restrict development itself in some at-risk coastal areas where alternative watre supplies are not feasible.
- Promote water conservation especially hard within at-risk areas.
- Allow takes but enforce strict monitoring conditions and cease take when saline intrusion is detected (this option would affect people's ability to take water if needed to stop saline intrusion).

Surfacewater/Groundwater Balance. It is also important to consider whether to encourage the use of groundwater in preference to surface water and whether to encourage the use of deeper, confined groundwater in preference to shallower, and unconfined groundwater. Deeper volcanic sequences are present in Rangitāiki Plain which could offer greater abstraction volumes with reduced stream depletion effects (in comparison to shallower takes from sedimentary deposits). But there is a question of whether we should encourage deeper bores.

Another important question is how to account for a groundwater take's impacts on surface water. If a take is going to affect surface water then we should probably reduce the availability of surfacewater by the estimated amount of that effect.

Landuse. A unique feature of this FMU is that for the most part groundwater quantity is not affected by adjacent surface activities as the dominant source of recharge for this FMU is the land directly upgradient of the aquifers. That raises the question of whether that recognition should be made in the RNRP to, perhaps, lessen barriers to more flexible landuse.

Next steps. Parts of the Whakatāne FMU are included within BOPRC's regional scale groundwater flow model for the Rangitāiki, Tarawera and Whakatāne areas. This model will be used to inform the limit setting process by simulating various levels of hypothetical groundwater abstraction and evaluating the associated cumulative effects on river baseflows and groundwater levels. The model area includes the Whakatāne River inland sedimentary basin (around Tāneatua) but excludes the Tauranga River basin around Rūātoki.

Question 19 Does this brief summary about groundwater quantity in this FMU seem about right to you?

Question 20 Groundwater is managed primarily to protect and maintain surface waters, and to meet current and future beneficial uses. What other things should it be managed for?

Question 21 Our understanding of groundwater availability is incomplete. We can set groundwater allocation limits that are lower i.e. more conservative or higher i.e. greater risk of overallocation. Where on the spectrum of risk are you?

For more information go to www.boprc.govt.nz/freshwater-info

Ngā mea e whai ake nei
Next steps

Feedback can be provided via our online platform, in person at community meetings, or in writing via post.

You can sign up to receive our Freshwater Flash e-newsletter at **boprc.govt.nz/newsletters** follow our social media or visit our website for regular updates.

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