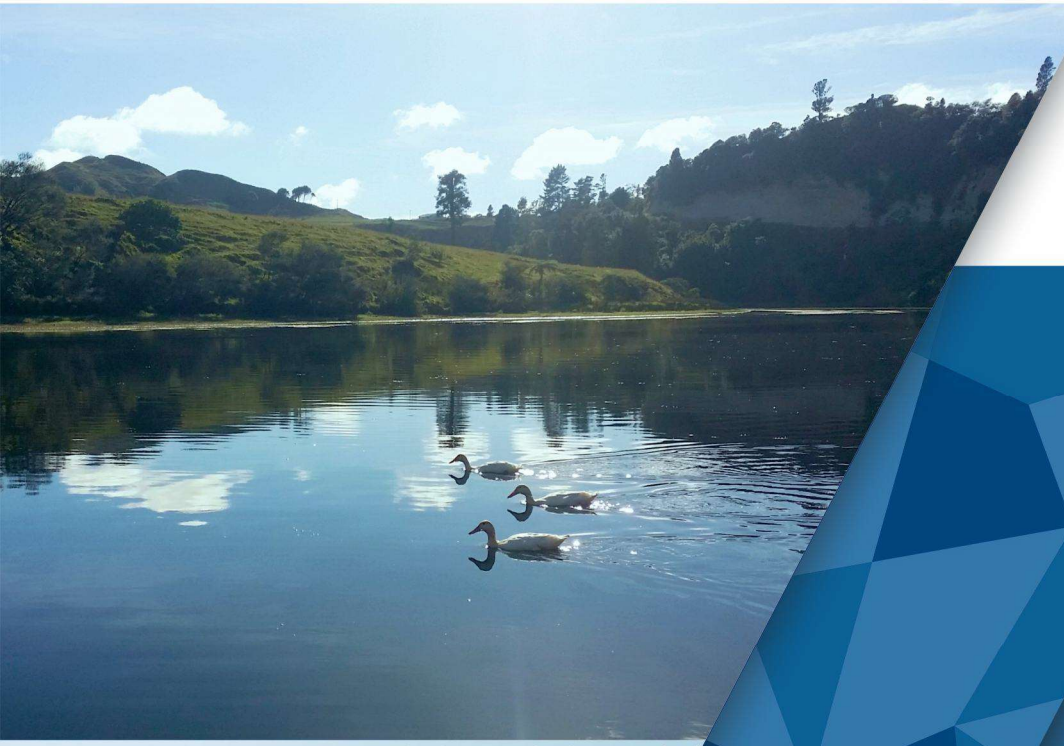
Pātea Catchment

FRESHWATER MANAGEMENT UNIT

Discussion document



Working with people | caring for Taranaki

Taranaki Regional Council

Taranaki Regional Council
Private Bag 713
Stratford

Document: 3203980 (Word)
September 2023

Purpose and contents of this discussion document

The purpose of this discussion document is to present the progress that Taranaki Regional Council has made on giving effect to the National Policy Statement for Freshwater Management 2020 (NPS-FM) requirements included in the National Objectives Framework (NOF). This is not a complete package of NOF requirements as it focuses on the initial and compulsory aspects of NOF.

This discussion document summarises previous feedback and presents the Council's progress on:

- attributes for ecosystem health and human contact and their baseline states;
- developing a Te Mana o te Wai (the mana of the water) objective;
- the draft long-term vision for the Freshwater Management Unit (FMU);
- the values at play within the FMU;
- draft environmental outcomes for each value within the FMU; and
- next steps for identifying additional attributes and setting target attribute states

As with previous engagement, the Council is checking in and seeking feedback on these matters across the discussion document.

WE WANT TO HEAR FROM YOU

You can find where the Council is seeking specific feedback on this discussion document in the callout boxes of relevant sections. The specific questions the Council is keen to investigate are set out in the callout boxes in the following sections:

- Te Mana o te Wai
- Long-term vision for the Pātea Catchment FMU
- Environmental outcomes for the Pātea Catchment FMU
- Target attribute states

Responses can be made by taking the online surveys (available 25 September 2023) at www.trc.govt.nz/freshwater, attending one of our workshops or by writing to the Council at policy@trc.govt.nz

Table of contents

List of tables

List of figures

List of photos

About the Pātea Catchment Freshwater Management Unit

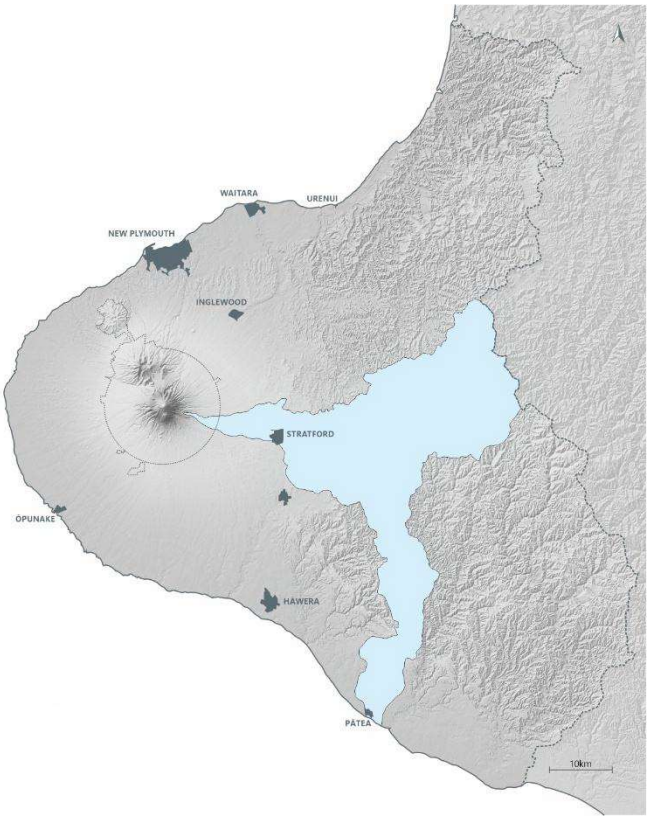


Figure 1 Pātea Catchment FMU area.

This diverse FMU incorporates the entire Pātea River catchment including its two distinct eastern sourced and western sourced sub-catchments (**Figure 1**). In the East, the Pātea River rises from springs on Taranaki Maunga, within Te Papa-Kura-o-Taranaki (the national park). It then flows swiftly down through the Stratford township. South east of Stratford, the Pātea River is joined by its largest tributaries, the Mangaehu and Makuri River, which bring waters sourced from the eastern sub-catchment and the eastern hill country. Downstream from this convergence, at Matemateāonga, the river enters the 46km long Lake Rotorangi. From here the river widens and slows, partially due to the flatter topography, but also as a result of the hydro dam which uses the supply of water in the lake for electricity generation.

Below the dam, the Pātea River winds its course through hill country forest and farm land, its flow regulated somewhat by the upstream hydro scheme. About 4km from the coast, tidal influences begin and increase with the appearance of soft muds, saltmarsh and rushlands. As the river nears the coast it flows through the Pātea township where a meat works and river wharf were previously operating on its banks. At the river mouth, the Pātea River meets the Tasman Sea through a set of man-made groynes that extend 10s of metres from the beach into the sea.

Along with being home to Lake Rotorangi, the Pātea Catchment FMU also contains around 1,230 mapped wetlands of a variety of types from Potaema Bog (in Te Papa-Kura-o-Taranaki) to the saltmarshes of the river mouth in Pātea.

The Pātea Catchment FMU is similar to the Waitara Catchment FMU in the sense that they are both large and long waterbodies that source from the Maunga and the eastern hill country.

Land use type generally follows topography and soil types (**Figure 2**). In the eastern hill country, forestry (including land under conservation title) dominates the higher and steeper areas prone to erosion. In the lower reaches sheep and beef become more prevalent while dairy dominates across the volcanic soils of the eastern catchment and also out towards the coast on the flatter topography.

The rohe of Ngāti Ruanui, Te Atiawa, Ngāruahine, Ngāti Maru and Ngaa Rauru iwi and four marae are located within the Pātea Catchment FMU. Each iwi, hapū and whānau hold tikanga (protocols) and mātauranga (knowledge) relevant to the awa for which they are kaitiaki (guardians). These significant relationships reflect the variety of histories that span the Pātea Catchment FMU and emphasise how each iwi are intrinsically connected to wai (water) through their whakapapa, culture and spirit. Some of these are recorded in Statutory Acknowledgements (contained in Deeds of Settlement) and others are included in Iwi Environmental Management Plans. Still others live on in the kōrero (stories and lessons) of kaumātua and kuia (elders) handed down the generations in an unbroken line.

Alongside the Pātea River and its many tributaries are many culturally significant sites and areas including pā, kāinga, urupā, waka, kai gathering areas and tauranga waka. At Pātea township, there is a memorial to Aotea waka, one of the canoes on which Māori immigrated to New Zealand.

The Pātea Catchment FMU is home to the townships of Stratford and Pātea. Stratford holds a population of more than 5,000 people and includes meat processing, meat rendering, concrete batching and galvanizing facilities. The Stratford area is supplied with drinking water from the Pātea River and its tributary, the Konini River. Pātea town holds a population of about 1,200 people and has become popular with horticulture growers including tomatoes and berries. In its heyday, the now closed Pātea meat freezing works provided employment for a bustling township. Pātea's drinking supply is sourced from groundwater in the nearby Coastal Terraces FMU.

There are a number of notable recreation sites within the FMU including in Stratford, at Lake Rotorangi and the Pātea Estuary. At the Pātea Dam, jet boating, water skiing, fishing, swimming and kayaking are popular, particularly in summer months with the widely utilised camp site. There are popular angling spots in accessible areas throughout the river. When water levels are sufficient, canoes may make their way down significant lengths of the river. The Pātea River's mouth is a notable feature for swimmers, fishers and surfers alike. Under the right tidal conditions the river mouth itself becomes surfable and is popular with children and learners. Swimmability monitoring takes place at King Edward Park in Stratford, Lake Rotorangi and at the Pātea River mouth.

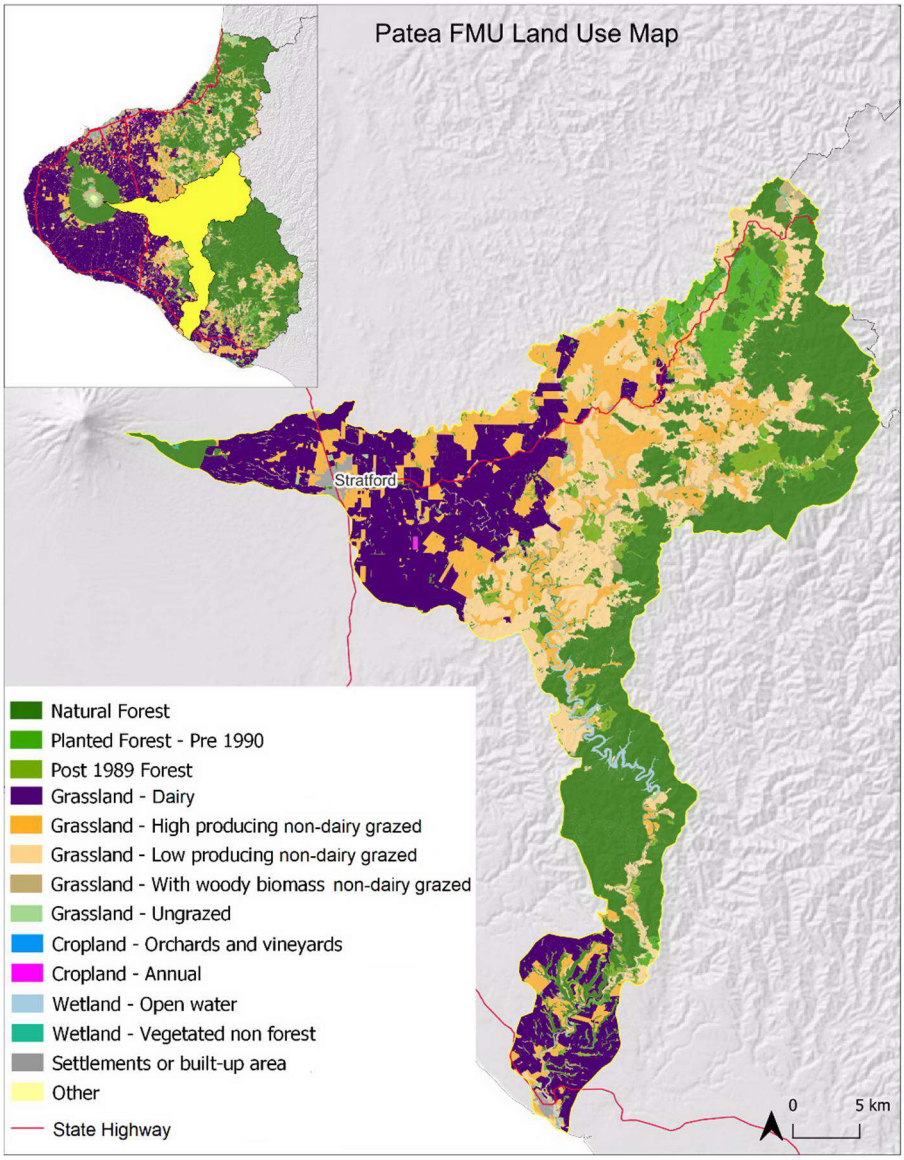


Figure 2 Indicative land use map for the Pātea Catchment FMU.

Background

The future of freshwater management in Taranaki

The *National Policy Statement for Freshwater Management 2020* (NPS-FM) sets out requirements for the management of freshwater. It is part of a broader suite of national direction on freshwater called *Essential Freshwater,* covering a range of initiatives including synthetic nitrogen caps and freshwater farm plans.

The NPS-FM sets out requirements for freshwater management to:

- manage activities that impact freshwater in a way that 'gives effect' to Te Mana o te Wai;
- maintain and/or improve freshwater and address any degradation;
- implement the National Objectives Framework (NOF);
- avoid any further loss or degradation of wetland extents and to encourage their restoration;
- improve fish abundance, diversity and passage;
- monitor and report on freshwater quality and quantity; and
- respond to any identified deterioration of freshwater (including ecosystems).

Key to implementing these requirements is ensuring that the values and concerns of the Taranaki community, including tangata whenua, and stakeholders are considered and integrated into the response. It's about having the right solutions to suit Taranaki.

What is the NOF process?

The National Objectives Framework (NOF) is a process which regional councils must work through in tandem with their freshwater plan reviews. The NOF process involves setting long-term visions (aspirations) for freshwater health, implementing changes to freshwater management approaches (e.g. rules and consents) and monitoring key elements of the state of freshwater to track progress toward achieving outcomes. The NOF process is applied to each Freshwater Management Unit (FMU). It is important to keep in mind that NOF is only one part of a much broader policy framework and there are other freshwater considerations that will be addressed through region-wide provisions in the remainder of the regional freshwater plan.

Working through the NOF process will require changes to our current freshwater management system which will be implemented through a number of initiatives, including:

- the establishment and roll out of freshwater farm plans;
- the review of the existing Regional Freshwater Plan and relevant chapters of the Regional Policy Statement (notification of changes scheduled for the end of 2024);
- the development of targets and limits to address certain freshwater indicators; and
- the development of action plans to implement other regulatory and non-regulatory programmes to address tricky issues such as providing for fish passage and the protection of threatened species (post notification, likely in 2025).

More information on the NOF process can be found on the Ministry for the Environment website.

Previous engagement

This discussion document builds upon previous conversations with communities. These include:

- Engagement on long-term visions for Taranaki – In mid-2021 the Council undertook an initial consultation with the community on their aspirations for freshwater. This was conducted via an online survey and in-person workshop in New Plymouth.
- Stakeholder workshops – In April 2022, the Council conducted a number of workshops with different stakeholder groups. These workshops explored, at a high level, Te Mana o te Wai, vision setting and the challenges and opportunities for Taranaki in freshwater management.

- In late 2022 the Council undertook broad community consultation on draft Freshwater Management Units (FMUs), aspirations for freshwater and the values that apply across the region. This consultation was supported by FMU Storyboards - information pages for each draft FMU

Partnering with tangata whenua

The Council has an agreement with Ngā Iwi o Taranaki to provide more meaningful opportunities for tangata whenua to be involved in NPS-FM implementation and the development of freshwater provisions in the Regional Policy Statement and the Regional Freshwater Plan. This agreement has resulted in the creation of two positions that assist Ngā Iwi o Taranaki to be involved in these work programmes. The work of these two positions has resulted in a number of position papers setting out the regional issues, aspirations for freshwater and regional approach to Te Mana o te Wai which brings Te Ao Māori perspectives to the fore to guide policy development and future engagement. These position papers have remained front of mind through the drafting process that has been undertaken in the preparation of this discussion document and will continue to be influential in policy development going forward.

This arrangement is the first of its kind for the Council and the partnership is continuing to be built as this work is progressed. The Council will continue to develop its understanding of these statements and work closely with tangata whenua in the future drafting and development of policy.

Freshwater Management Units (FMUs)

An FMU is a water body or multiple water bodies that the Council considers to be an appropriate scale for managing freshwater, including the setting of freshwater visions, objectives, targets, flows and limits. Every water body in the region must be located within one FMU. The draft FMU designations are set out in **Figure 3** below.

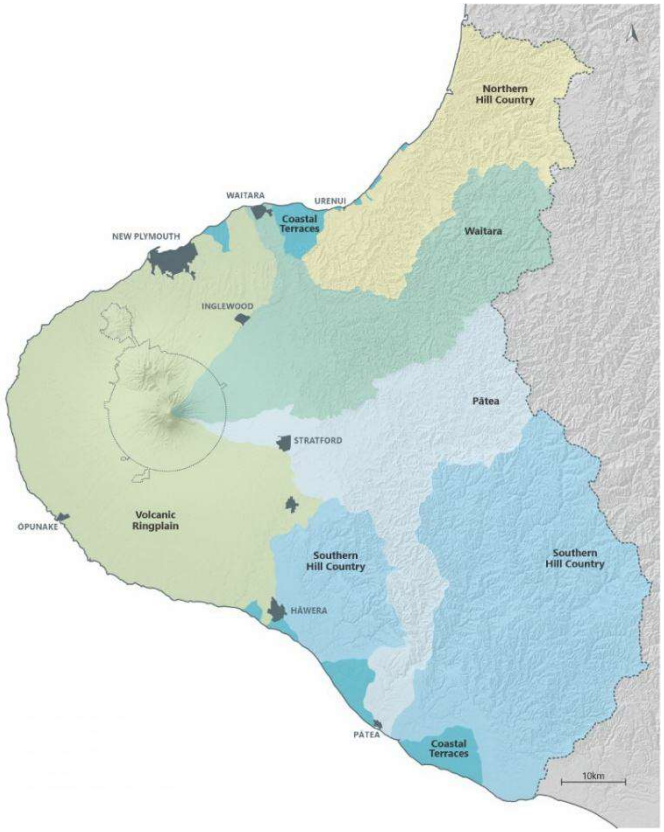


Figure 3 Draft Freshwater Management Unit designations for Taranaki.

In setting draft FMUs, the Council applied the following principles, recognising that there are multiple ways that the region could be spatially defined.

FMU designation principles:

- 'Ki uta ki tai' – source to sea approach, not splitting catchments across different FMUs;
- go with the wai - catchment boundaries should be used rather than property boundaries to delineate FMUs;
- designed to enable freshwater accounting requirements for limit and target setting (rather than being based on land use practices); and
- keep it simple – fewer FMUs will reduce complications and ensure the NOF is workable.

The feedback received was generally supportive of the six areas, however, there were some comments and suggestions for change. These included:

- noting that Taranaki is a small region with a large number of catchments which does not lend itself well to separation into FMUs;
- noting that the Pātea Catchment FMU fragments the Southern Hill Country FMU;
- suggestions to consider additional areas be added to the Coastal Terraces FMU;
- suggestions of separating catchments that rise in Te Papa-Kura-o-Taranaki from those that begin on the lower areas of the Volcanic Ring Plain FMU; and
- suggestions to set the Waitōtara and Whenuakura as their own FMU.

The Council has given consideration to each of these suggestions. Noting that the proposed FMUs were widely supported by those who provided feedback, the Council considers that any concerns raised can be addressed through appropriate policy drafting, without the need to change FMU boundaries.

TAKE OUR SURVEY

Council is seeking feedback on the following sections:

- Te Mana o te Wai
- Long-term vision for the Volcanic Ring Plain FMU
- Environmental outcomes for the Volcanic Ring Plain FMU
- Target attribute states

Responses can be made by taking the online surveys (available 25 September 2023) at www.trc.govt.nz/freshwater, attending one of our workshops or by writing to the Council at policy@trc.govt.nz

Freshwater in Pātea catchment FMU

Baseline states for compulsory attributes

Regional councils must identify baseline states (current or starting points) for a range of different attributes or measures of freshwater health. Baselines provide the context for which councils must either maintain or improve freshwater.

Different attributes relate to different values, uses and interests. Of the four compulsory values, attributes are identified for two: ecosystem health and human contact. There are five components of ecosystem health that tell us about how well an FMU, or part of an FMU, supports freshwater ecosystems. These are:

- *Water quality* – measures the physical and chemical characteristics of water, such as temperature, dissolved oxygen and nutrients.
- *Water quantity* – how much water is in river, stream, lake, or aquifer and how this changes over time.
- *Physical habitat* – the shape and appearance of a body of water, from the bed to the banks and plants present.
- *Aquatic life* – the abundance and diversity of species living in freshwater, from insects and fish to plants and microbes.
- *Ecological processes* – the natural cycling of carbon and nutrients through the food chain.

Attributes are assessed using NOF bands. Generally, NOF bands range from bands **D** or **E** (poor) through to band **A** (good). The NPS-FM also sets out national bottom lines for some attributes. Catchments that fail to achieve a national bottom line are priority areas for the Council and communities to focus their efforts. Descriptions of each of the attributes and what they are used for are included in Appendix 1 – NOF attribute descriptions.

How we are doing

Ecosystem health varies throughout the Pātea Catchment FMU. Gains have been made in recent years with significant investment in the fencing and planting of riparian margins. There are, however, some areas that need further improvement. Dissolved reactive phosphorus and sediments are elevated throughout the FMU due to a combination of natural conditions and human activities, which impact aquatic ecosystems. Periphyton is currently achieving the minimum standards for healthy freshwater, however, further monitoring is required to better understand algal growth in streams and rivers. Generally, the state of aquatic life is mixed, with most monitored sites showing some degree of impact.

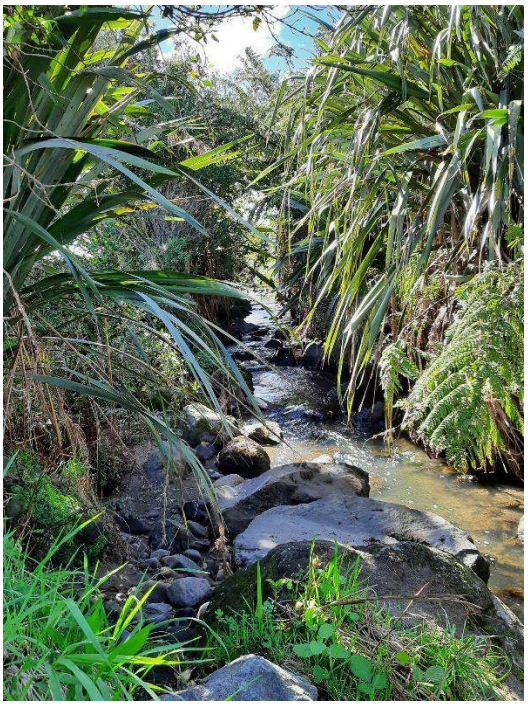


Photo 1 Riparian margin plantings.

Culverts, dams, weirs and other barriers make it difficult for fish to freely migrate through some catchments. These barriers will require modification to allow fish passage.

Across the FMU improvements are required to provide for safe contact with freshwater. Presently, 67% of rivers and streams are considered unsuitable for swimming and recreation. Two swimming sites fail to achieve minimum standards and are, at times, unsuitable for swimming and recreation during the summer bathing season (1 November – 30 March). Cyanobacteria (blue-green algae) blooms however, are not a significant issue and Lake Rotorangi is generally suitable for swimming and recreation.

A summary of the baseline states at each monitoring site is included at Appendix 2 – Baseline states for monitored sites.

How baselines are identified

The Council's approach to compiling baseline information has varied depending on the attribute. Full details are set out in technical memorandums here www.trc.govt.nz.

Where available, monitoring data from water testing or ecological surveys has been used. Monitoring data provides an understanding of what is happening at a particular location. However, using monitoring data alone can introduce site selection bias. This can result in under- or over-representation of rivers and lakes with certain characteristics.

Spatial modelling can help 'fill the gaps' between monitoring sites and present broad-scale patterns in water quality. These models make estimates of water quality or ecosystem health based on the relationships between catchment characteristics such as climate, soils, geology and land use. They can also be used to help us test the impacts of different management approaches, interventions and actions on freshwater outcomes in Taranaki.

Where both monitored and modelled attribute data is available, two methods have been employed to identify baseline state.

- For monitoring site data, each site within an FMU is assigned to a corresponding attribute band.
- For modelled data, a prediction of attribute state is made for each river segment (small geographic units of a river or stream, ranging from 10s to 1,000s of metres in length). The baseline state is identified by determining the total length and overall percentage of total river and stream segments that are assigned to each attribute band.
- For lakes, modelled predictions are made at the scale of the overall lake.

Uncertainty is a component of any freshwater monitoring or modelling. For example, river flows and levels fluctuate throughout the day, and nutrient levels will vary depending on how much rainfall and runoff is occurring. Pathogens and algae will grow in response to a range of factors, such as temperature, light and river flow. This uncertainty is described in terms of 'confidence'. For example, how certain it is that water quality is reflected in the measurement reported. Where possible, additional assessments have been undertaken to determine a level of confidence in the results.

Some of this uncertainty arises because of the design of the monitoring network. The Council is currently undertaking a review of its freshwater State of Environment monitoring network to ensure it has adequate coverage across the region and aligns with NPS-FM requirements. Due to the high cost, there will always be limitations as to what monitoring alone can achieve.

The Pātea Catchment FMU has 10 monitoring sites available for baseline identification (see **Appendix 2 – Baseline states for monitored sites**). Over the past two years, the Council has introduced a new lakes monitoring programme, and redesigned the *Can I Swim Here?* summer bathing programme to align with NPS-FM requirements. Monitoring of some aspects of freshwater, such as mahinga kai, threatened species, dissolved oxygen, periphyton and fish require further development.

River water quality

Monitored river water quality results are summarised in **Table 1** below.

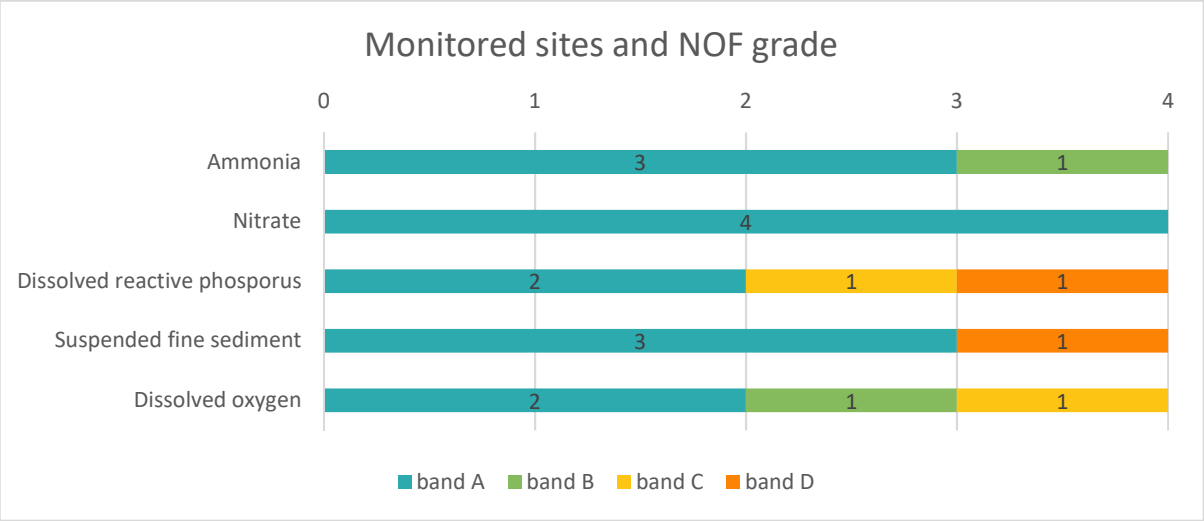


Table 1 Water quality results for monitored sites in Pātea Catchment FMU.

Nutrients

Ammonia, nitrate, and phosphorus are important for plant growth, but in excess amounts can cause problems in freshwater. They can lead to an overabundance of algae and aquatic weeds, impact on the growth of sensitive species, or even become toxic to freshwater organisms.

Four sites are monitored for ammonia. Three out of four sites fall within band A and one site in band B. At these sites, ammonia is likely to have little to no effect on all but the most sensitive species. Modelled estimates support the monitored results, with approximately 68% in band A and 32% in band B (**Figure 4**).

Four sites are monitored for nitrate, all of which fall in band A. At these sites, nitrate is likely to have little to no effect on aquatic life. Modelled estimates largely support the monitored data, with approximately 76% in band A and 24% in band B (**Figure 5**).

Dissolved reactive phosphorus (DRP) is present in elevated concentrations in rivers and streams. Of the four sites monitored for DRP, two sites fall in band A, one site falls in band C and one site falls in band D. Modelling suggests that the majority of rivers experience elevated concentrations of

Photo 2 Monitoring of suspended fine sediment by black disk visual clarity.

DRP, with 32% estimated to fall in band B, 33% in band C and 35% in band D (**Figure 6**). Elevated concentrations of phosphorus can result in excessive growth of plants and algae, significantly affecting the health of aquatic environments. Sources of DRP are varied, with acidic volcanic soils and sedimentation likely contributing DRP to the environment.

Suspended fine sediment

Sediment enters rivers and lakes naturally through erosion and runoff, but increases significantly as a result of deforestation, land use activities and direct discharges. Of the four monitoring sites, three fall in band A and one in band D, which is below the national bottom line and requires improvement. Modelling suggests that 39% of rivers and streams fall in band A, 12% in band B, 17% in band C and 32% in band D (**Figure 7**). Sources of sediment in the Pātea Catchment FMU are from Te Papa-Kura-o-Taranaki, hill country erosion in the east of the FMU and land use practises. Given this FMU is susceptible to high levels of erosion and soil loss, efforts will be required throughout this catchment to see the necessary levels of improvement.

Dissolved oxygen (DO)

There are four sites in the Pātea Catchment FMU that are monitored for dissolved oxygen, two fall in band A, one in band B and one in band C. Monitoring of point source discharges to waterways is also a requirement of the NPS-FM. This is not yet undertaken, but will be addressed as the Council develops a new monitoring programme.

Photo 3 Aquatic ecosystems State of Environment periphyton monitoring.

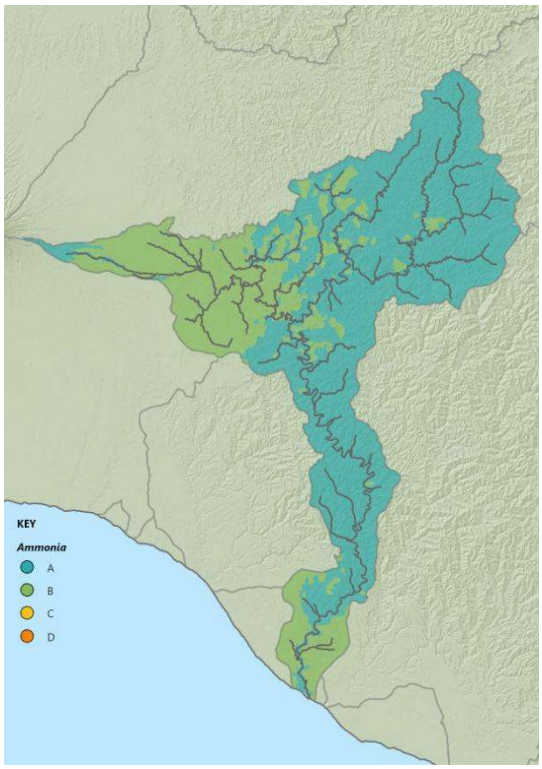


Figure 4 Ammonia modelling.

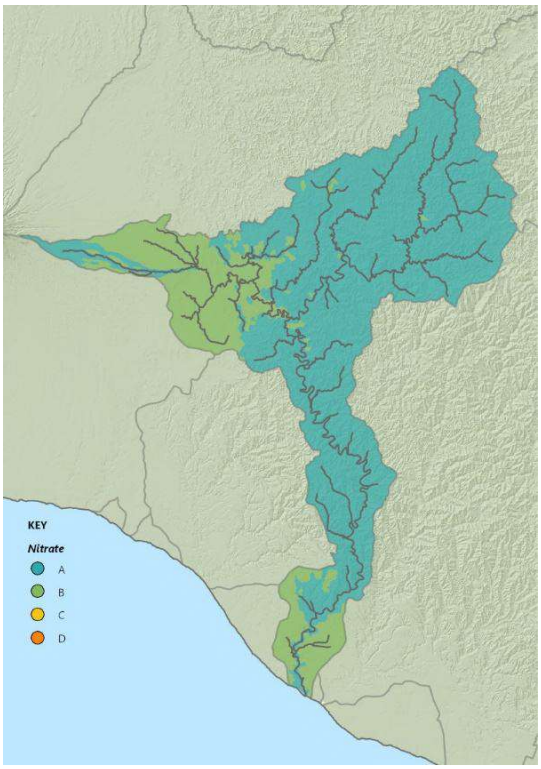


Figure 5 Nitrate modelling.

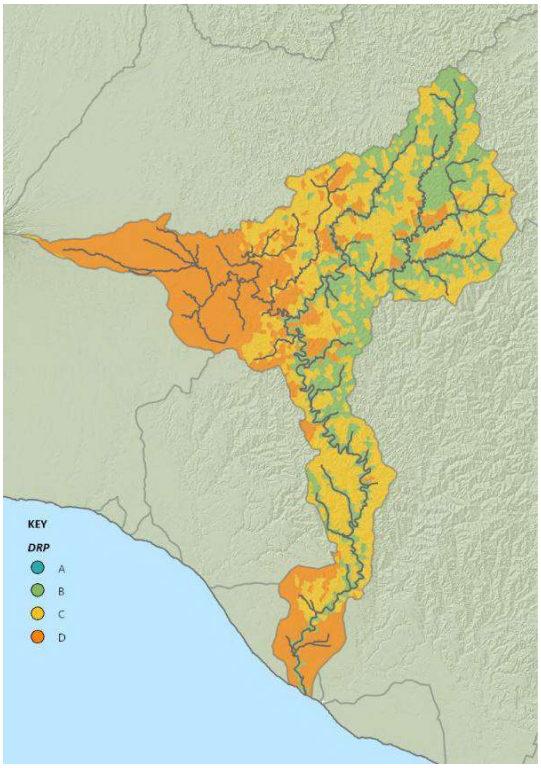


Figure 6 Dissolved reactive phosphorus modelling.

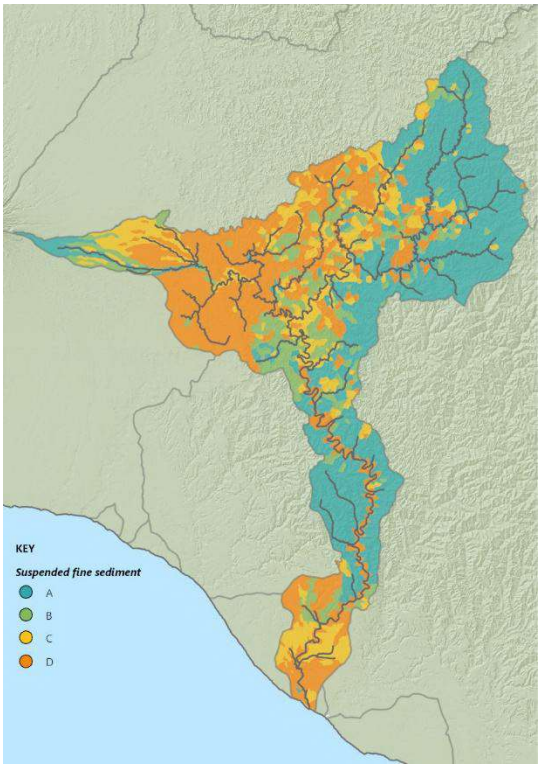


Figure 7 Suspended fine sediment modelling.

River water quantity

Water quantity is about tracking how much water is available and how it is being used. This is important for consent holders who might use water for crop irrigation or municipal water supply to enable them to comply with any consent limits. It is also important for ensuring that water allocated for use is done so in a way that provides for other freshwater values, such as ecosystem health.

Under the NPS-FM, water use is managed by setting environmental flows and levels, taking into account any changes that are likely to occur as a result of climate change. Limits can then be set on the rate and amount of water taken, and where and when that water can be abstracted. Monitoring of water use ensures that people comply with the relevant rules and regulations.

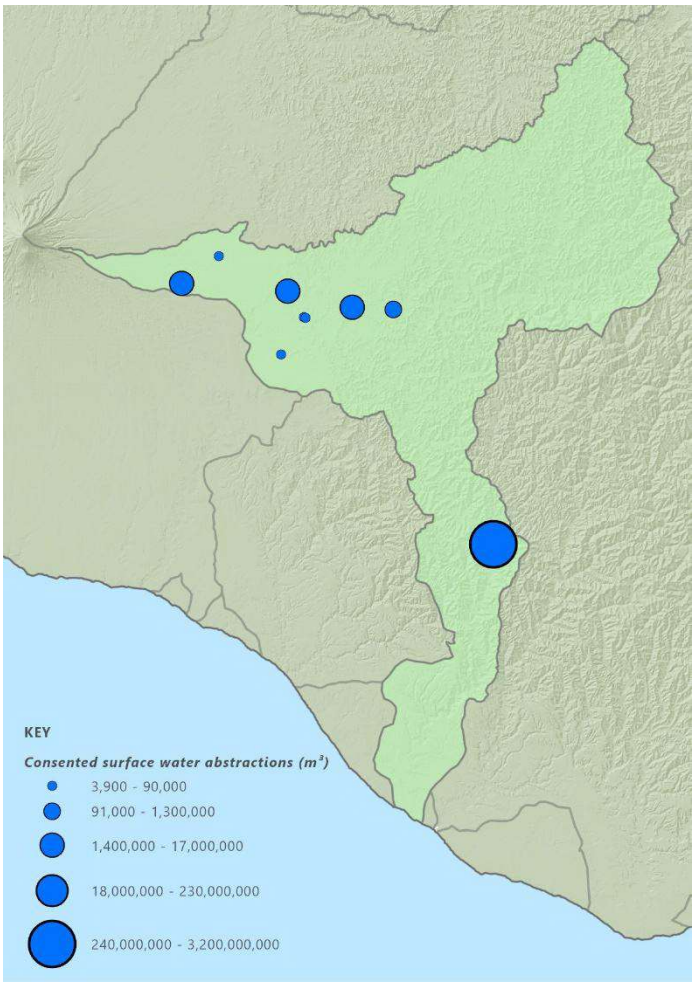


Figure 8 Consented surface water abstraction.

The Council's current Regional Freshwater Plan requires that 66% of the mean annual low flow (MALF) be retained as a minimum flow. There is no limit to the amount of water that can be allocated as a proportion of MALF. Currently there are nine consents to take water in the Pātea Catchment FMU (**Figure 8**). The Makuri Stream in the Pātea Catchment FMU has more than 33% of MALF allocated. Of these consents three currently have no minimum flow limit set.

Setting appropriate environmental flows and levels will be an outcome of the next stage in the NOF process. It is anticipated that more stringent limits will be necessary to provide for other freshwater outcomes such as ecosystem health, mahinga kai and threatened species. This is likely to have implications for the amount of water that can be allocated for use in the future.

River habitat

Ensuring rivers and streams have habitat suitable for supporting aquatic life is essential. The only compulsory attribute is deposited fine sediment. When sediment settles onto the river bed, forming muddy deposits, it can smother the habitats of aquatic organisms that make rivers their home.

Monitoring of deposited fine sediment in accordance with NPS-FM requirements began in June 2023. Due to this limited data record, the Council has re-purposed pre-existing information and undertaken modelling.

Monitoring data from the one site in the Pātea Catchment FMU falls within band B. An existing national spatial model estimates that 11% of the FMU achieves band A, nearly 40% in band B, 23% in band C and 25% in band D (**Figure 9**).

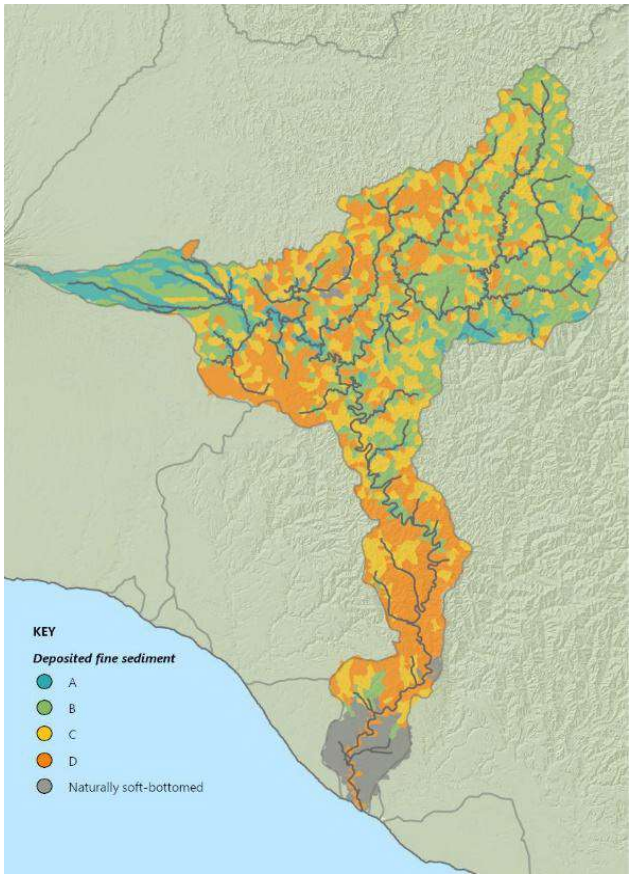


Figure 9 Deposited fine sediment modelling.

River aquatic life

Aquatic organisms are sensitive to changes in water quality, quantity and habitat. By identifying the range of aquatic organisms living in rivers, lakes and streams, and counting their abundance, we can determine the health and wellbeing of freshwater. Some organisms are desirable (indigenous species and others that may be valued for fishing or mahinga kai) where others are undesirable (pest species).

Periphyton

Growth of periphyton generally occurs as a result of nutrient enrichment in combination with favourable conditions such as warm temperatures and low water flows. There is currently one site monitored for periphyton and is graded in band B. This site experiences occasional periphyton blooms. New periphyton monitoring sites are currently being investigated in order gain a better understanding of periphyton occurrence more broadly across the Pātea Catchment FMU.

Fish

The fish attribute considers the integrity of fish communities. There are currently no State of Environment fish monitoring sites in the Pātea Catchment FMU, although other available fish data indicate that community integrity varies throughout the catchment. The current monitoring network review aims to improve our understanding of fish communities in this FMU, to align with NPS-FM requirements.

Macroinvertebrates

Three measurements are used to assess macroinvertebrate health: macroinvertebrate community index (MCI), quantitative macroinvertebrate community index (QMCI) and macroinvertebrate average score per metric (ASPM).

For MCI, the diversity of macroinvertebrate species varies throughout the Pātea Catchment FMU, with one of five monitored sites achieving band A, one site achieving band B, and the remaining three sites falling in band C (**Table 2**). Modelled data suggests that approximately 13% of the catchment achieves band A, 51% band B and 35% band C (**Figure 10**). Just 1% of the FMU falls into band D, below the national bottom line. Macroinvertebrate communities here are minimally to moderately affected by pollution and nutrient enrichment.

For QMCI, of the five monitored sites, two sites fall in band A, and three sites fall in band C (**Table 2**). Modelled data suggests that 3% of waterways fall in band A, 38% fall in band B, and 55% fall in band C (**Figure 11**). Approximately 4% are expected to fall in band D, below the national bottom line.

For ASPM, one of five sites falls in band A, two in band B and two in band C (**Table 2**). Modelling suggests that approximately 1% of waterways fall in band A, 33% falls in band B, 65% in band C and the remaining 1% falls in band D and below the national bottom line (**Figure 12**).

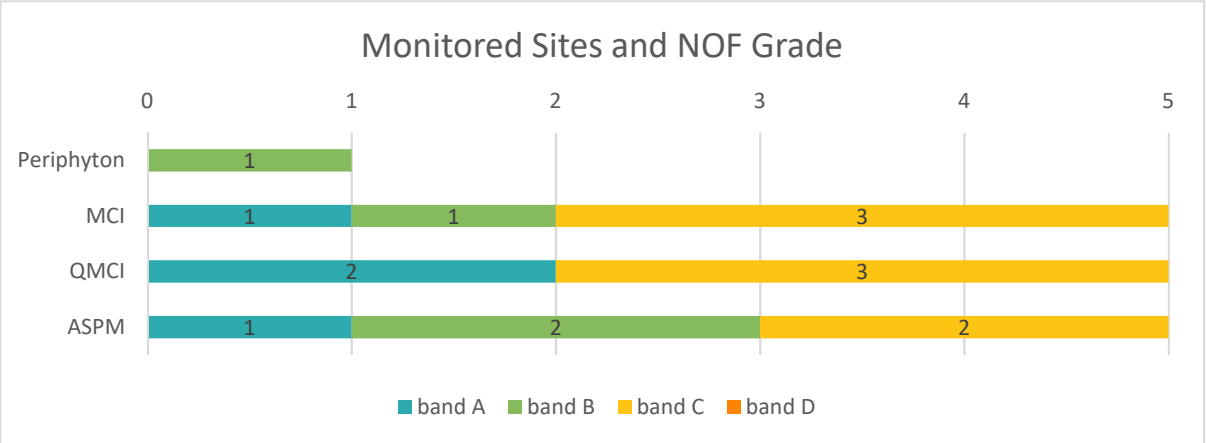


Table 2 Aquatic life results for monitored sites in the Pātea Catchment FMU.

Photo 4 The extent to which macroinvertebrates, like this mayfly *Coloburiscus*, are present is an indicator of waterway health.

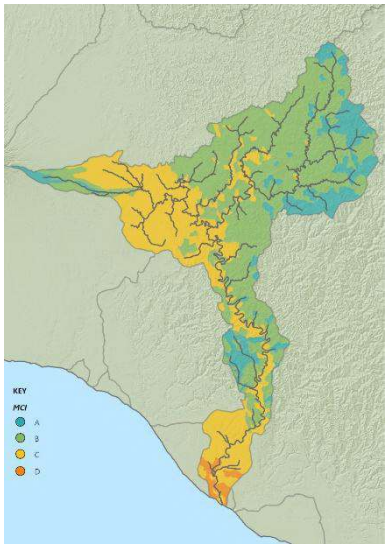


Figure 10 MCI modelling

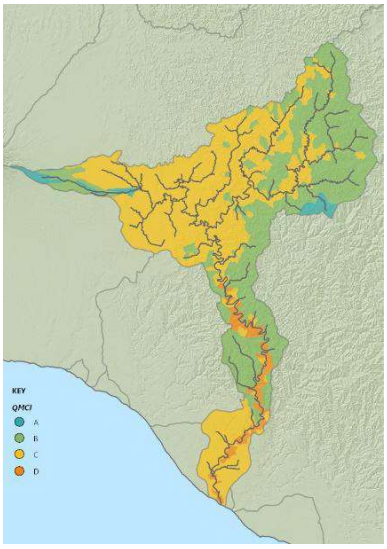


Figure 11 QMCI modelling

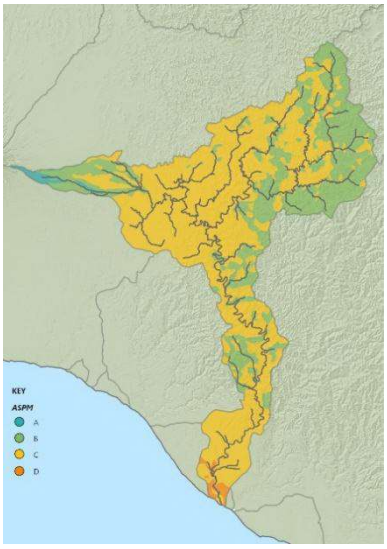


Figure 12 ASPM modelling

Ecological processes

Ecological processes are assessed by looking at ecosystem metabolism. This is derived from at least seven days of continuous dissolved oxygen monitoring collected during summer (1 November to 30 April). There is currently limited information with which to inform baseline state and a new monitoring programme is required. This will be possible as we roll out our dissolved oxygen monitoring network to align with NPS-FM requirements over the next couple of years. To date, the Council has established four sites with continuous monitoring of dissolved oxygen in the Pātea Catchment FMU.

Ecosystem Health in Lakes

The health of lake ecosystems is affected by nutrients, sediment and other pollutants, just as it is in rivers and streams. However, lakes behave differently to rivers and streams due to being more confined environments, relatively still/slow flowing and having greater depths. Lakes provide important habitat for indigenous plants and animals and can be susceptible to the growth of pest vegetation, so some additional attributes are also included.

Human contact

Escherichia coli – routine

Grading of *E. coli* for year round monitoring is different to other NOF attributes (**Figure 13**). A fifth band E is included and there is no national bottom line, although band C is generally considered the minimum standard for primary contact.

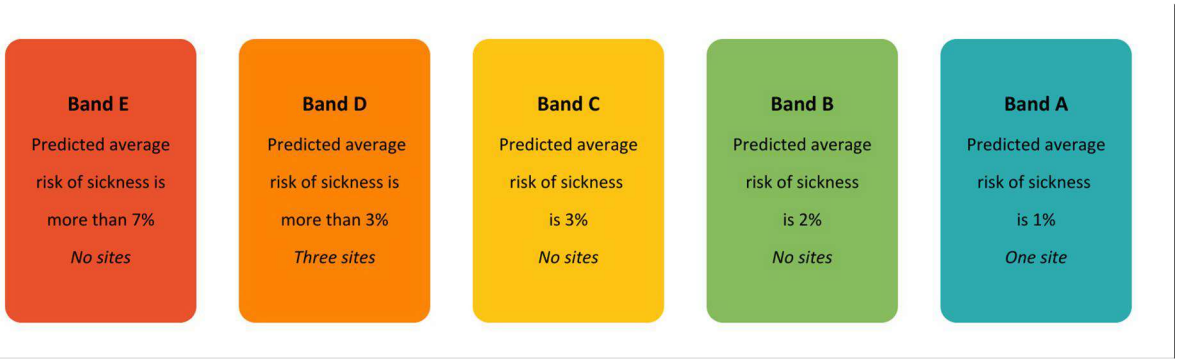


Figure 13 Grading of *E. coli* for routine monitoring which includes an additional 'E band' not included in other NOF attributes

The routine monitoring of *E. coli* is carried out every month at four sites as part of Council's State of Environment water quality monitoring. One site is graded in band A, the remaining sites fall in band D (two sites) and band E (one site) and are generally unsuitable for swimming (**Figure 13**).

Modelling data suggests 8% of rivers and streams fall in band A, 19% in band B and 6% in band C. The remaining 25% and 42% falls in bands D and E respectively and are considered unsafe for swimming (**Figure 14**).

There is a clear pattern of degradation in water quality as water travels from source to sea throughout the Pātea Catchment FMU. Lower *E.coli* concentrations are expected in the mid-reaches of the FMU due to the higher proportion of indigenous forest cover.

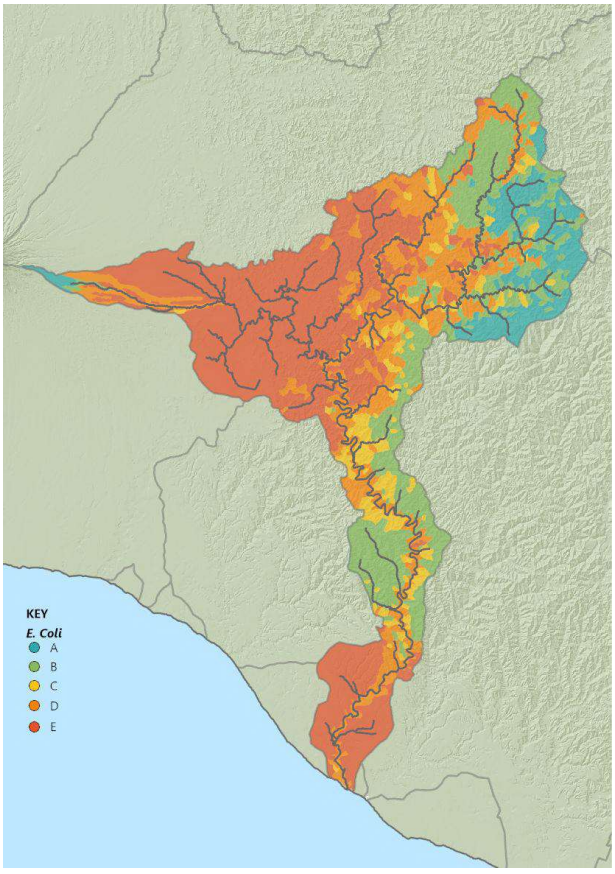


Figure 14 *E. coli* modelling.

***Escherichia coli* (primary contact sites)**

In addition to the routine monitoring of *E. coli*, the Council undertakes additional weekly monitoring of primary contact sites to identify potential health risks during the summer bathing season. Primary contact monitoring in the Pātea Catchment FMU is undertaken at three popular river swim spots[1]. Results are based on the risk of getting sick when you go for a swim (**Figure 15**).

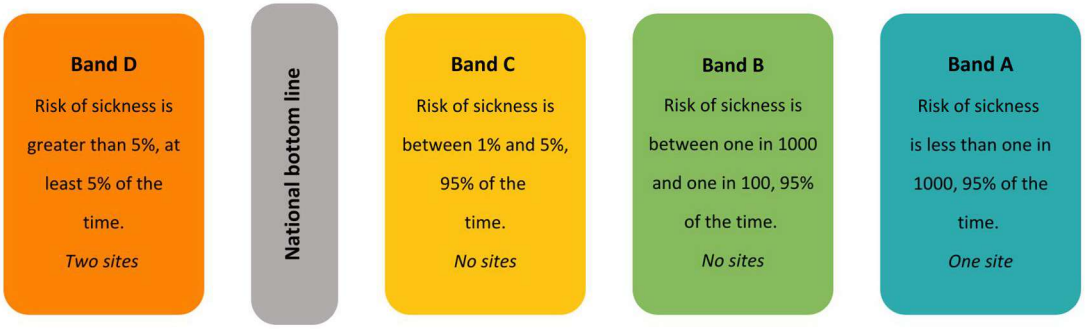


Figure 15 Grading of *E. coli* for primary contact sites which uses a poor to excellent grading system unlike many of the other NOF attributes.

In the Pātea Catchment FMU, two of the three primary contact sites are graded in band D, while the remaining site is graded band A.

Cyanobacteria

Cyanobacteria, otherwise known as blue-green algae, is monitored at Lake Rotorangi. Regular monitoring at Lake Rotorangi began in April 2023, so there is limited information to assess the impact of cyanobacteria on human contact. Instead, the Council has used modelling along with measured data. This determines that Lake Rotorangi is likely to sit within band A, meaning the risk exposure is no different to that in natural conditions.

Te Mana o te Wai

Te Mana o te Wai is the central concept underpinning the NPS-FM 2020 and refers to the fundamental importance of water and the connection all New Zealanders have with it. It recognises that protecting the health of freshwater protects the health and well-being of the wider environment and the community. It recognises the relationship that tangata whenua have with wai (water) through whakapapa (familial relationship through heritage).

There are six principles of Te Mana o Te Wai which identify the responsibilities that apply to different people. These principles are:

mana whakahaere: the power, authority, and obligations of tangata whenua to make decisions that maintain, protect, and sustain the health and well-being of, and their relationship with, freshwater.

governance: the responsibility of those with authority for making decisions about freshwater to do so in a way that prioritises the health and well-being of freshwater now and into the future.

kaitiakitanga: the obligation of tangata whenua to preserve, restore, enhance, and sustainably use freshwater for the benefit of present and future generations.

stewardship: the obligation of all New Zealanders to manage freshwater in a way that ensures it sustains present and future generations.

manaakitanga: the process by which tangata whenua show respect, generosity, and care for freshwater and for others.

care and respect: the responsibility of all New Zealanders to care for freshwater in providing for the health of the nation.

There is a hierarchy of obligations under Te Mana o te Wai which sets out the decision making priorities for freshwater management. The hierarchy prioritises:

- first, the health and well-being of waterbodies and freshwater ecosystems;
- second, the health needs of people (such as drinking water); and
- third, the ability of people and communities to provide for their social, economic, and cultural well-being now and in the future.

This hierarchy recognises that all freshwater needs and uses are reliant upon healthy water for their long-term provision.

Every regional council must include an objective in its regional policy statement that describes how the management of freshwater in their region will give effect to Te Mana o te Wai[2].

Ngā Iwi o Taranaki provided a first draft of a Te Mana o te Wai objective that reflected how tangata whenua see the concept being given effect to. The Council has prepared a second draft which springs from that. Following this consultative stage, and considering the feedback received, further work and refinements will be made to the draft objective in collaboration with Ngā Iwi o Taranaki. To support this objective, a broader policy framework will also be prepared to ensure that Te Mana o te Wai is given effect to through the different management and decision making processes of the regional freshwater plan.

The draft Te Mana o te Wai objective that the Council is seeking feedback on is included in the box that follows:

[2] NPS-FM Clause 3.2(3), page 13.

Objective – Te Mana o te Wai

Through partnership with tangata whenua and the community, Te Mana o te Wai will be given effect to by:

a) *recognising and providing for the mana motuhake, manaakitanga and kaitiakitanga of tangata whenua partners in management and decision making on freshwater;*
b) *strengthening the relationships between wai (water), whenua (land) and all people and, for tangata whenua o Taranaki, affirming and strengthening the enduring, integral whakapapa relationships;*
c) *upholding, protecting, and restoring the mauri, health, and well-being of wai and waterbodies for current and future generations;*
d) *acknowledging and responding to the unique whakapapa of waterbodies; and*
e) *providing for waterbodies to behave [naturally] as they wish;*

so that the interconnectedness of wai, whenua and taiao continue to support and perpetuate life.

QUESTIONS TO PONDER

TE MANA O TE WAI

Question 1: What do you think about the objective of giving effect to Te Mana o te Wai?

Question 2: Do these provisions cover everything that is important to you? Please let us know if there is anything missing.

Question 3: Tell us to what extent you agree or disagree with these draft provisions?

Long-term vision for the Pātea Catchment FMU

A long-term vision is an objective that sits within the Regional Policy Statement (RPS) that reflects the aspirations of the Council, tangata whenua and the broader community for freshwater within the FMU. The purpose of that objective is to set out an ambitious *but* reasonable goal for the FMU, and illustrate what freshwater would look like in the long-term.

The long-term vision itself identifies the timeframe within which the objective is to be achieved, and the very nature of this is to be beyond the life of the RPS. This approach encourages the Council to anticipate and strategically plan for continuous and sustained improvements across a much longer planning horizon and confirm the practicality of the vision.

The broader NOF framework and other directions in the NPS-FM sets out the process for turning this ambitious long-term vision into something that can be implemented and achieved. It does this through the development of environmental outcomes, setting of target attributes, setting limits on freshwater use, applying conditions to resource consents, developing action plans and review of the freshwater rules and broader policy framework. This is a much broader process that will take more time and collaboration with stakeholders and tangata whenua to work through.

What is below is a starting point for those discussions to spring from. The draft below has sprung from and has been informed by position papers from tangata whenua, feedback from previous consultation, and Council knowledge.

Long-term vision for the Pātea Catchment Freshwater Management Unit

In the Pātea Catchment Freshwater Management Unit:

1. *freshwater and the effects of activities on freshwater are managed to give effect to te Mana o te Wai;*
2. *the journey of freshwater, from numerous springs on Taranaki Maunga and the eastern hill country down through the Pātea Estuary to the Tasman sea, sustain the life force and mauri of the environment and reflect their natural variability and natural form and character;*
3. *the waters of Te Papa-Kura-o-Taranaki and Conservation Lands are protected and celebrated as waters which behave in accordance with their natural character;*
4. *water bodies, including riparian margins, wetlands and lakes, groundwater and surrounding habitats, support diverse, abundant and connected ecosystems and the resilience of indigenous and threatened species;*
5. *the mana of tangata whenua and their traditional and ongoing relationships with wai are restored through mahinga kai and the practice of mātauranga Māori;*
6. *land use and freshwater practices improve freshwater quality so that ecosystem health and human health needs are provided for and protected by:*
    a. *taking into account historical cumulative effects of intensive land use on the environment; and*
    b. *being responsive to the current and future effects of climate change;*
7. *strong and resilient biodiversity provide for the sustainable harvest of mahinga kai, rongoa and fish;*
8. *Lake Rotorangi is maintained in an excellent state for human contact and other water bodies, in particular primary contact sites, are safe for swimming, mahinga kai and other customary and recreational purposes; and*
9. *hydro-electric power generation at the Pātea Dam provides clean and renewable energy while ensuring that environmental and community values continue to be provided for and improved;*

by the year (date tbc).

QUESTIONS TO PONDER

LONG TERM VISIONS

Question 4: What do you think about the draft long-term visions for the Pātea Catchment FMU?

Question 5: To what extent do you agree or disagree with the draft long-term visions?

Values and environmental outcomes for the Pātea Catchment FMU

The NPS-FM uses the term "values" to refer to important aspects of freshwater that need to be considered and provided for when setting targets and limits. Freshwater must be managed to protect compulsory freshwater values and other values present within the FMU. Compulsory values are those required to be addressed through the NOF: ecosystem health, human contact, threatened species and mahinga kai. Non-compulsory values must be considered, and, if relevant to the FMU, taken through the NOF process.

For any value identified within an FMU, the Regional Freshwater Plan must set out an objective (environmental outcome) which describes the desired state for water bodies in that FMU. Because environmental outcomes are included in the Regional Freshwater Plan, they therefore have a strong association with the policies, rules and consenting processes relating to freshwater management decisions.

The identification of values and the draft environmental outcomes for the Pātea FMU has been informed by position papers from tangata whenua, previous consultation and Council knowledge.

Compulsory values

Ecosystem health

Environmental conditions ensure that ecosystems within the Pātea Catchment FMU are healthy and resilient to seasonal variations, the impacts of climate change and the effects of land and freshwater use by achieving the following:

a) ***Water Quality:*** *the physical and chemical measures of freshwater including appropriate light penetration and nutrient and oxygen concentrations ensure the healthy functioning of ecosystems;*

b) ***Water Quantity:*** *the extent and variability in the level and flow of freshwater:*

   i. *maintains the hydrological connectivity;*

   ii. *maintains and improves aquatic habitats;*

   iii. *provides for life stages of aquatic biodiversity;*

   iv. *supports terrestrial habitats; and*

   v. *ensures appropriate nutrient cycling;*

c) ***Habitat:*** *the natural and physical form, structure and extent of water bodies are protected and improved from their current state to ensure the preservation of aquatic habitats and indigenous aquatic ecosystems;*

d) ***Aquatic Life:*** *healthy communities of microbes, invertebrates, plants and fish are found throughout and identified pest species are managed to reduce their impact on aquatic life;*

e) ***Ecological Processes:*** *the well-functioning interactions between water bodies (hydrology and physical-chemical characteristics), their surrounding environments (landscapes, geology and climate) and their biota are recognised and provided for.*

Human contact

Human connections to waterbodies are provided for, by:

a) *protecting Lake Rotorangi as a primary contact site that already supports safe and appealing interactions with freshwater;*

b) *facilitating opportunities for safe contact at primary contact sites (refer Appendix 3 – Identified values in the Pātea Catchment FMU [Primary contact sites]), particularly in summer; and*

c) *reducing the overall risk to human health throughout the Pātea Catchment FMU.*

Threatened species

Wetlands, riparian margins and other critical habitats within the Pātea Catchment FMU promote the continued survival, natural migration and long-term recovery of threatened species (refer Appendix 3 – Identified values in the Pātea Catchment FMU [Freshwater dependent threatened species]).

Mahinga kai

Tangata whenua can safely practise mahinga kai, and sustainably harvest and consume species important to them for whānau and marae events, year-round within the Pātea Catchment FMU because:

a. *kaitiakitanga is exercised by tangata whenua according to their tikanga and customs, including while carrying out mahinga kai activities and practices;*
b. *waterways support a healthy, diverse and abundant range of mahinga kai species;*
c. *mahinga kai species can travel naturally throughout the catchments to complete necessary life stages;*
d. *habitat of mahinga kai species is thriving and flourishing (healthy and improving);*
e. *water quality and water quantity support healthy mahinga kai species and areas; and*
f. *whānau (all generations) can safely access mahinga kai sites, areas and waterbodies, and share knowledge and customs associated with mahinga kai.*

Non-compulsory values

Natural form and character

The natural form and character of water bodies within the Pātea Catchment FMU are protected and, where the natural form and character has been degraded, their restoration is promoted and provided for.

Drinking water supply

Sustainable and potable drinking water is provided for throughout the Pātea Catchment FMU by sufficient freshwater quality and quantity and is palatable where the natural chemistry of the source allows.

Wai tapu

Tangata whenua can access wai tapu sites and localities within the Pātea Catchment FMU which are free from human and animal waste, contaminants and excess sediment; the valued features and unique properties of wai are protected.

Watercraft and tauranga waka

Catchments/reaches of the Pātea Catchment FMU that are important for watercraft and tauranga waka (refer Appendix 3 – Identified values in the Pātea Catchment FMU [Watercraft and Tauranga waka]) have sufficient freshwater quantity to be navigable.

Fishing

The health and abundance of fisheries species within the Pātea Catchment FMU are provided for by suitable freshwater quality and quantity including at identified recreational fishing areas (refer Appendix 3 – Identified values in the Pātea Catchment FMU [Fishing values]).

Hydro-electric power generation

Hydro-electric power generation at Lake Rotorangi is provided for by suitable freshwater quality and quantity and the physical qualities of the Pātea Catchment FMU.

Animal drinking water

Water bodies within the Pātea Catchment FMU provide sufficient and safe water for the drinking needs of animals.
Irrigation, cultivation and production of food and beverages *Irrigation, cultivation and the production of food and vegetables within the Pātea Catchment FMU are sustainably provided for by suitable and reliable freshwater quality and quantity.*
Commercial and industrial use *Commercial and industrial activities and opportunities within the Pātea Catchment FMU are sustainably provided for by suitable and reliable freshwater quality and quantity.*

QUESTIONS TO PONDER

VALUES AND OUTCOMES

Question 6: Have the right values been identified for the Pātea Catchment FMU?

Question 7: What do you think of the draft environmental outcomes identified for each value in the Pātea Catchment FMU?

For example, the value for fishing has the environmental outcome of "*The health and abundance of fisheries species within the Pātea Catchment FMU are provided for by suitable freshwater quality and quantity including at identified recreational fishing areas*"

Progressing towards identifying target attribute states

Progress towards achieving each of the environmental outcomes will be measured by identification of target attribute states. The target attribute states set out the milestones and overall goal for each attribute to support the achievement of the relevant environmental outcomes and long-term visions. A target attribute state must not be lower than the baseline state and must at least achieve an identified national bottom line. For attributes associated with the value of human contact, the target state must be higher than baseline to deliver on national targets for improving swimmability.

Further work with tangata whenua, communities and stakeholders is required to identify possible mitigations and actions, and set target attribute states that are both ambitious and achievable. In doing so, the Council will need to identify the 'gap' between the current/baseline state and these targets, and consider the options and opportunities over the next years and decades to close that gap. These opportunities include updating rules and policies in the Regional Freshwater Plan where activities are having a detrimental effect on the environment, preparing action plans (non-regulatory approaches) to making improvements, and updating consent conditions.

Set out below are a set of draft principles to guide the setting of target attribute states.

Principles for setting target attribute states

1. All assessments of target attribute state must have regard to the foreseeable impacts of climate change.
2. All target attribute states must either maintain or improve the attribute state from baseline:
    a) to meet or exceed national bottom lines (except in the case of naturally occurring processes[1]); and
    b) to either:
        i. maintain the baseline state where the relevant environmental outcome(s) is already being achieved (including clause 2(a)); or
        ii. improve upon the baseline state where this is not considered to achieve the relevant environmental outcome(s).
3. When identifying and assessing target attribute states, identify all actions/approaches/ mitigations that would be required to achieve improvements at each NOF band.
4. Using best available information, ensure that an identified target attribute state is achievable within the timeframe set in the long-term vision. Where the timeframe of a draft long-term vision may be unreasonable or unachievable, identify alternative options to inform the draft long-term vision.
5. Where an attribute state is unlikely to meet the vision and environmental outcomes within 10 years, or where significant short term gain can be achieved, support the target attribute state with interim targets (no more than 10-year timeframes).

QUESTIONS TO PONDER

TARGET ATTRIBUTE STATES

Question 8: What do you think of the principles for setting target attribute states?

Question 9: What is important for the Council to consider when setting target attribute states for the Pātea Catchment FMU?

Glossary

Biological diversity means the variability among living organisms, and the ecological complexes of which they are a part, including diversity within species, between species, and of ecosystems.	RMA
Ecosystem means the complexes of organisms and their associated physical environment within an area (and comprise: a biotic complex, an abiotic environment or complex, the interactions between the biotic and abiotic complexes, and a physical space in which these operate).	NPS-IB
Freshwater or **fresh water** means all water except coastal water and geothermal water.	RMA
Indigenous biodiversity means the living organisms that occur naturally in New Zealand, and the ecological complexes of which they are part, including all forms of indigenous flora, fauna, and fungi, and their habitats.	NPS-IB
Natural form and character has the same meaning as in Appendix 1B of the NPS-FM, which refers to: matters contributing to the natural form and character of an FMU are its biological, visual and physical characteristics that are valued by the community, including: a) Its biophysical, ecological, geological, geomorphological and morphological aspects b) the natural movement of water and sediment including hydrological and fluvial processes c) the natural location of a water body and course of a river d) the relative dominance of indigenous flora and fauna e) the presence of culturally significant species f) the colour of the water g) the clarity of the water.	NPS-FM App 1B
Resilience in relation to an ecosystem, means the ability of the ecosystem to recover from and absorb disturbances, and its capacity to reorganise into similar ecosystems. [Resilient has the same meaning].	NPS-IB
Restoration means the active intervention and management of modified or degraded habitats, ecosystems, landforms, and landscapes in order to maintain or reinstate indigenous natural character, ecological and physical processes, and cultural and visual qualities, and may include enhancement activities. [Restore has the same meaning].	NPS-IB
Te Mana o te Wai has the same meaning as set out in clause 1.3 of the NPS-FM.	NPS-FM
Water: a) means water in all its physical forms whether flowing or not and whether over or under the ground: b) includes fresh water, coastal water, and geothermal water: c) does not include water in any form while in any pipe, tank, or cistern.	RMA
Water bodies means fresh water or geothermal water in a river, lake, stream, pond, wetland, or aquifer, or any part thereof, that is not located within the coastal marine area.	RMA

Appendix 1 – NOF attribute descriptions

Rivers

	NOF Attribute	Applies to	Description
Water quality	Ammonia (toxicity)	Rivers and lakes	Ammonia and nitrate are two forms of nitrogen; an essential nutrient for plant growth. They are components of nitrogen based fertilisers which enter the environment from point source discharges and runoff. Ammonia and nitrate contribute to the rapid growth of aquatic weeds and at certain levels are toxic to aquatic life.
	Nitrate (toxicity)	Rivers	
	Dissolved reactive phosphorus (DRP)	Rivers	A form of phosphorus that is available for plants to use for growth. High levels of DRP can contribute to periphyton (green-brown algae) growth in rivers.
	Suspended fine sediment	Rivers	Fine particles of sediment from erosion, runoff, and effluent discharges reduce light penetration and smother habitat. Too much fine sediment can make rivers and streams unpleasant to swim in and unsuitable for drinking water and for mahinga kai.
	Dissolved oxygen	Rivers	Dissolved oxygen is required by all aquatic life for respiration. The availability of oxygen dissolved in water will decrease as nutrients, temperature and algal growth increases. If the amount of oxygen dissolved into water drops below a certain point, it can lead to stress, harm or death of aquatic life.
	Dissolved oxygen	Rivers (below point sources only)	Oxygen dissolved in water can be directly affected by a point-source discharge such as a pipe at a factory or wastewater facility. The nutrients and organic matter in wastewater discharges can lead to increased microbial growth in aquatic environments, which can subsequently deplete dissolved oxygen concentrations.
Physical habitat	Deposited fine sediment	Wadeable rivers	Deposited fine sediment is mud, silt or sand that has been accumulated onto the river bed. When sediment is deposited, it fills spaces between rocks and reduces the available habitat for freshwater organisms.
Aquatic life	Periphyton (trophic state)	Rivers	Periphyton is the green-brown algae that grows on the rocks and on the riverbed. Growth of periphyton is affected by temperature and nutrients in the water. When rivers rise with rain, periphyton is washed away but during low flows excess periphyton growth can cause issues for freshwater ecosystems, drinking water and for recreation.
	Fish (rivers)	Rivers	Fish habitat can be impacted by deposited sediment or excess algal growth, making it difficult for fish to survive and spawn. Many native fish also migrate, travelling the lengths of the rivers from which they spawn. The presence or absence of fish species in waterbodies is representative of fish community health. Reduced fish

			community health may be indicative of reduced ecosystem health generally or other factors such as barriers preventing fish from moving through a catchment.
	Macroinvertebrates (1 of 2) – MCI & QMCI	Rivers	Macroinvertebrates are small animals such as aquatic worms, insects and snails. Their sensitivity to environmental changes makes them a good indicator of stream health. MCI simply accounts for the presence of a particular species, whereas QMCI also includes the number of individuals present.
	Macroinvertebrates (2 of 2) - ASPM	Rivers	The ASPM measure of macroinvertebrates combines both MCI and QMCI, and also counts of three particularly sensitive, closely related, families of insects.
Ecosystem processes	Ecosystem metabolism	Rivers	The cycling of energy, nutrients, carbon and oxygen through the food chain provides the appropriate balance to support organisms from plants and algae through to fish and birds.

Lakes

	NOF Attribute	**Applies to**	**Description**
Water quality	Total nitrogen (trophic state)	Lakes	Total nitrogen is a measure of the availability of all forms of nitrogen in lakes, including ammonia and nitrate. Nitrogen is an essential nutrient for aquatic plants however, elevated nitrogen can contribute to excessive lake plant and algal growth and degrade ecological communities.
	Total phosphorus (trophic state)	Lakes	Total phosphorus is a measure of all the available forms of phosphorus in lakes, including DRP. Like nitrogen, phosphorus is an essential nutrient for plant growth, but it can accumulate with sediment at the bottom of a lake where it can be released periodically when dissolved oxygen concentrations are depleted, helping drive lake algal blooms.
	Ammonia (toxicity)	Rivers and lakes	Ammonia contributes to the rapid growth of aquatic weeds and at certain levels is toxic to aquatic life.
	Lake-bottom dissolved oxygen	Lakes	This relates to the levels of dissolved oxygen on the bottom of lakes which is important for aquatic organisms inhabiting these areas. The availability of oxygen dissolved in water will decrease as nutrients, temperature and algal growth increases. If the amount of oxygen dissolved into water drops below a certain point, it can lead to stress, harm or death of aquatic life.

	Mid-hypolimnetic dissolved oxygen	Seasonally stratified lakes	This relates to the levels of dissolved oxygen in the lower parts of seasonally stratifying lakes, where fish are most likely to reside due to more conducive temperatures. The availability of oxygen dissolved in water will decrease as nutrients, temperature and algal growth increases. If the amount of oxygen dissolved into water drops below a certain point, it can lead to stress, harm or death of aquatic life.
Aquatic life	Phytoplankton (trophic state)	Lakes	Phytoplankton are microscopic organisms that float freely near the surface of lakes. In high numbers, phytoplankton are seen as algal blooms.
	Submerged plants (natives)	Lakes	Native submerged plant species are an important part of the freshwater ecosystem, providing food and habitat for fish and other aquatic animals. Plants also help to improve water quality by filtering pollutants and sediments.
	Submerged plants (invasive)	Lakes	Invasive submerged plant species can disrupt freshwater ecosystems by displacing native plant species and can have negative impacts on lake ecosystems.

Human contact

Attribute	**Applies to**	**Description**
Escherichia coli	Lakes and rivers	*Escherichia coli* (*E. coli*) is used to indicate faecal contamination in freshwater which create risks for human health in elevated concentrations. Contamination might come from wastewater, industry and animal effluent discharges.
Escherichia coli (primary contact sites)	Primary contact sites in lakes and rivers (during the bathing season)	Popular swimming and recreational spots have been identified as primary contact sites which are monitored over the summer period. *E. coli* measures are graded against recommendations from the World Health Organisation on safe recreational water quality. These grades provide a level of risk for getting sick.
Cyanobacteria (planktonic)	Lakes and lake-fed rivers	Blue-green algae, or cyanobacteria, live naturally in freshwater. Blue-green algae can become problematic when excess nutrients and elevated water temperatures allow them to grow excessively, resulting in algal blooms. These can be seen as bright green or blue-green globules in the water column or as surface scums that can accumulate at lake edges. Some species of cyanobacteria produce toxins which can present health risks to people and animals.

Appendix 2 – Baseline states for monitored sites

Site code	Site name	Periphyton (trophic state)	Ammonia (toxicity)	Nitrate (toxicity)	Suspended fine sediment	*E. coli* (regional sites)	Fish-IBI	Macroinvertebrates SQMCI	Macroinvertebrates MCI	Macroinvertebrates ASPM	Deposited fine sediment	Dissolved oxygen (rivers)	Dissolved reactive phosphorous	*E. coli* (primary contact sites)	Phytoplankton (lakes)	Total nitrogen (lakes)	Total phosphorus (lakes)	Cyanobacteria (lakes)	Submerged plants (natives)	Submerged plants (invasive species)	Lake-bottom dissolved oxygen	Mid-hypolimnetic dissolved oxygen
Rivers																						
MGH000950	Mangaehu River at Raupuha Road bridge		A	A	D	D		C	C	C		A	A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MKR000495	Makuri Stream 30 m downstream of Raupuha Road	B	A	A	A	E		C	C	C	B		A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PAT000200	Pātea River at Barclay Road bridge		A	A	A	A		A	A	A			C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PAT000297	Pātea River at King Edward Park													D	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PAT000315	Pātea River at Swansea Road bridge							A	B	B				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PAT000360	Pātea River at Skinner Road bridge		B	A	A	D		C	C	B		C	D	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PAT000995	Pātea River at mouth													D	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PKS000187	Piakau Stream 1.3 km upstream of State Highway 3 bridge											A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PKS000200	Piakau Stream at State Highway 3											B		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lakes																						
LRT000470	Lake Rotorangi at Pātea Dam pontoon	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	A				A				

Appendix 3 – Identified values in the Pātea Catchment FMU

Primary contact sites

Site	Catchment
Pātea River at King Edward Park	Pātea
Pātea River at mouth	Pātea
Lake Rotorangi	Pātea

Freshwater dependent threatened species

The following table contains those freshwater dependent threatened species that the Council has identified for this FMU. The list is a draft and further work is required to better understand the status of these species across the FMU (including habitats critical to their survival) and to identify additional species (if any) to be added to the list:

Taxa group	Scientific name	Common name(s)	Threat Status	Highly Mobile Fauna[3]
Bats	*Chalinolobus tuberculatus*	Long-tailed bat, Pekapeka,	Nationally Critical	✓
Birds	*Anas chlorotis*	brown teal, pāteke,	Nationally Increasing	✓
	Anas superciliosa	Grey duck, Pārera,	Nationally Vulnerable	✓
	Botaurus poiciloptilus	Australasian bittern, Matuku hūrepo,	Nationally Critical	✓
	Hydroprogne caspia	Caspian tern, Taranui,	Nationally Vulnerable	✓
	Hymenolaimus malacorhynchos	Whio, Blue duck, Whio, Kōwhiowhio (Ngāi Tahu), Kowhiowhio, Mountain duck, Blue mountain duck	Nationally Vulnerable	✓
	Hydroprogne caspia	Caspian tern, Taranui,	Nationally Vulnerable	✓
	Falco novaeseelandiae ferox	Bush falcon, Kārearea, Kāeaea	Nationally Increasing	✓
	Poliocephalus rufopectus	New Zealand dabchickweweia, Totokipio, Taihoropi (Hokianga), Taratimoho (Waikato), New Zealand grebe	Nationally Increasing	
Fish	*Galaxias postvectis*	Shortjaw kokopu	Nationally Vulnerable	
	Geotria australis	Lamprey	Nationally Vulnerable	
Invertebrates	*Lepidurus apus viridis*	Tadpole shrimp	Nationally Endangered	

[3] As identified in [Appendix 2: Specified highly mobile fauna] of the National Policy Statement for Indigenous Biodiversity (NPS-IB).

Taxa group	Scientific name	Common name(s)	Threat Status	Highly Mobile Fauna[3]
Plants	*Kunzea robusta*	Kanuka	Nationally Vulnerable	
	Leptospermum scoparium var. scoparium	Manuka, Tea tree, Kahikatoa	Nationally Vulnerable	
	Lophomyrtus bullata	Ramarama, Bubble leaf	Nationally Critical	
	Lophomyrtus obcordata	Rohutu, New Zealand myrtle	Nationally Critical	
	Metrosideros colensoi	Climbing rata	Nationally Vulnerable	
	Metrosideros diffusa	White rata	Nationally Vulnerable	
	Metrosideros perforata	White rata, Akatorotoro, Akatea	Nationally Vulnerable	
	Metrosideros robusta	Northern rata	Nationally Vulnerable	
	Neomyrtus pedunculata	Rohutu, myrtle	Nationally Critical	
	Syzygium maire	Swamp maire, Maire tawake, Waiwaka	Nationally Critical	

The Council is also assessing the following threatened species for their 'freshwater dependence':

- *Eudynamys taitensis* (Long-tailed cuckoo, Koekoeā, Koekoea, Kohoperoa, Long-tailed koel)
- *Oligosoma aff. infrapunctatum* "Southern North Island" (Kupe skink, Tamatea skink)
- *Brachyglottis kirkii var. kirkii* (Kohurangi, Kirk's daisy)
- *Leptinella dispersa* subsp. *rupestris*
- *Metrosideros fulgens* (Rata, Akatawhiwhi)
- *Rorippa divaricate* (New Zealand water cress, Matangaoa)
- *Solanum aviculare* var. *aviculare* (Poroporo)

Additional information provided by other organisations or individuals will be valuable to this process.

Watercraft and Tauranga waka

Location/site name	Catchment	Boating	Tauranga waka
Lake Rotorangi	Pātea	✓	
Pātea Estuary	Pātea	✓	

Fishing values

The following freshwater fish are found within the Pātea Catchment FMU and are valued for fishing:

Whitebait species		Other species	
Scientific name	**Common name**	**Scientific name**	**Common name**
Galaxias fasciatus	Banded kokopu	*Salmo trutta*	Brown trout
Galaxias brevipinnis	Koaro	*Geotria australis*	Lamprey
Galaxias postvectis	Shortjaw kokopu	*Anguilla dieffenbachii*	Longfin eel
		Oncorhynchus mykiss	Rainbow trout

Whitebait species		Other species	
Scientific name	**Common name**	**Scientific name**	**Common name**
		Anguilla australis	Shortfin eel

The identified fishing areas for recreational fishing are:

Catchment	Sub-catchment/reach	Trout	Whitebait
Pātea River	Kahouri Stream	✓	
Pātea River	Paetahi Stream	✓	
Pātea River	Main stem	✓	