Te Kōrero o te whakahaere i ngā kāhui wai māori o Waioweka me Ōtara

The Waioweka-Ōtara 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 Waioweka-Ōtara Freshwater Management Unit (FMU). These options are to do with how we manage freshwater in Waioweka-Ōtara 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.

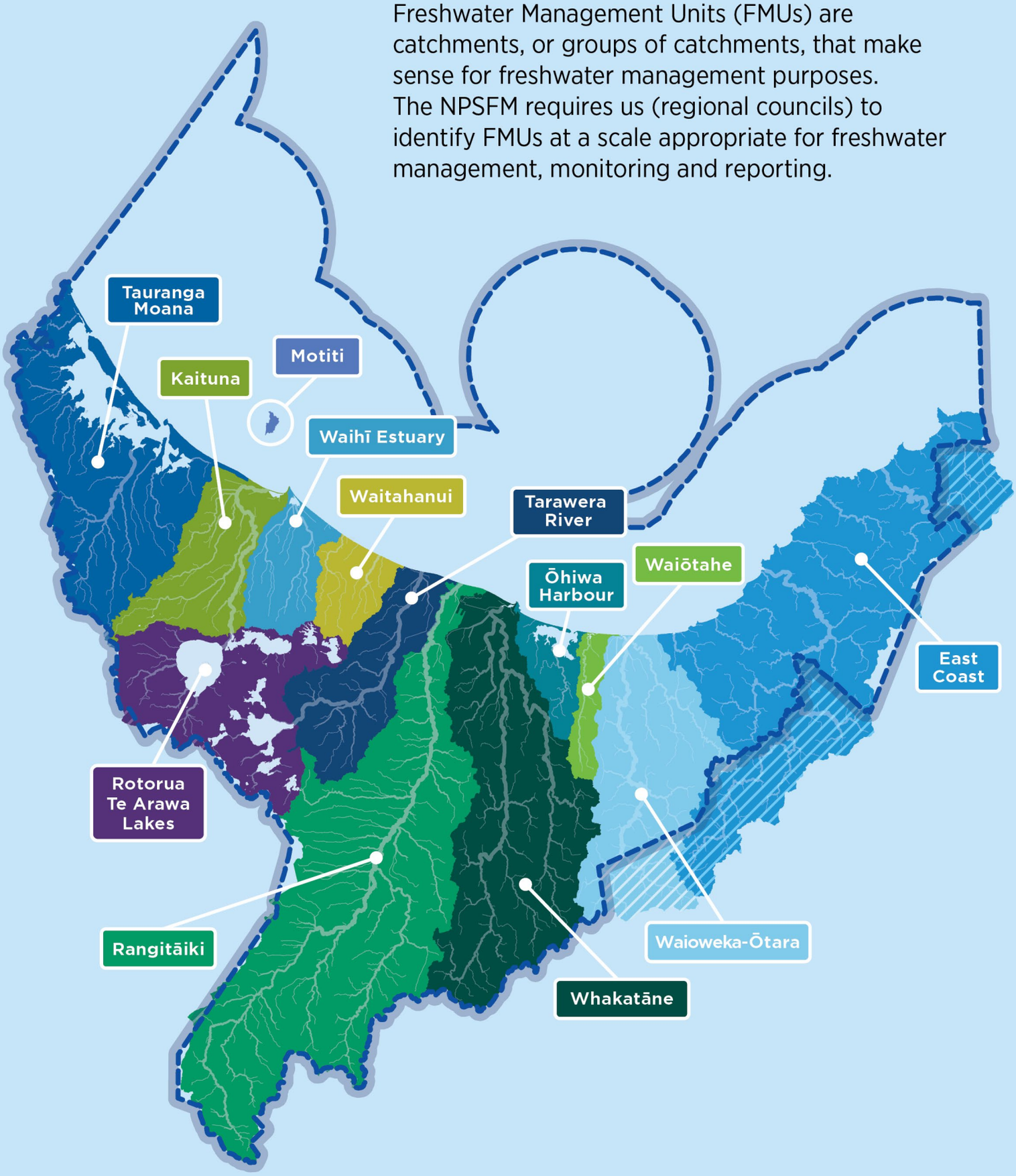
For more info

- 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**

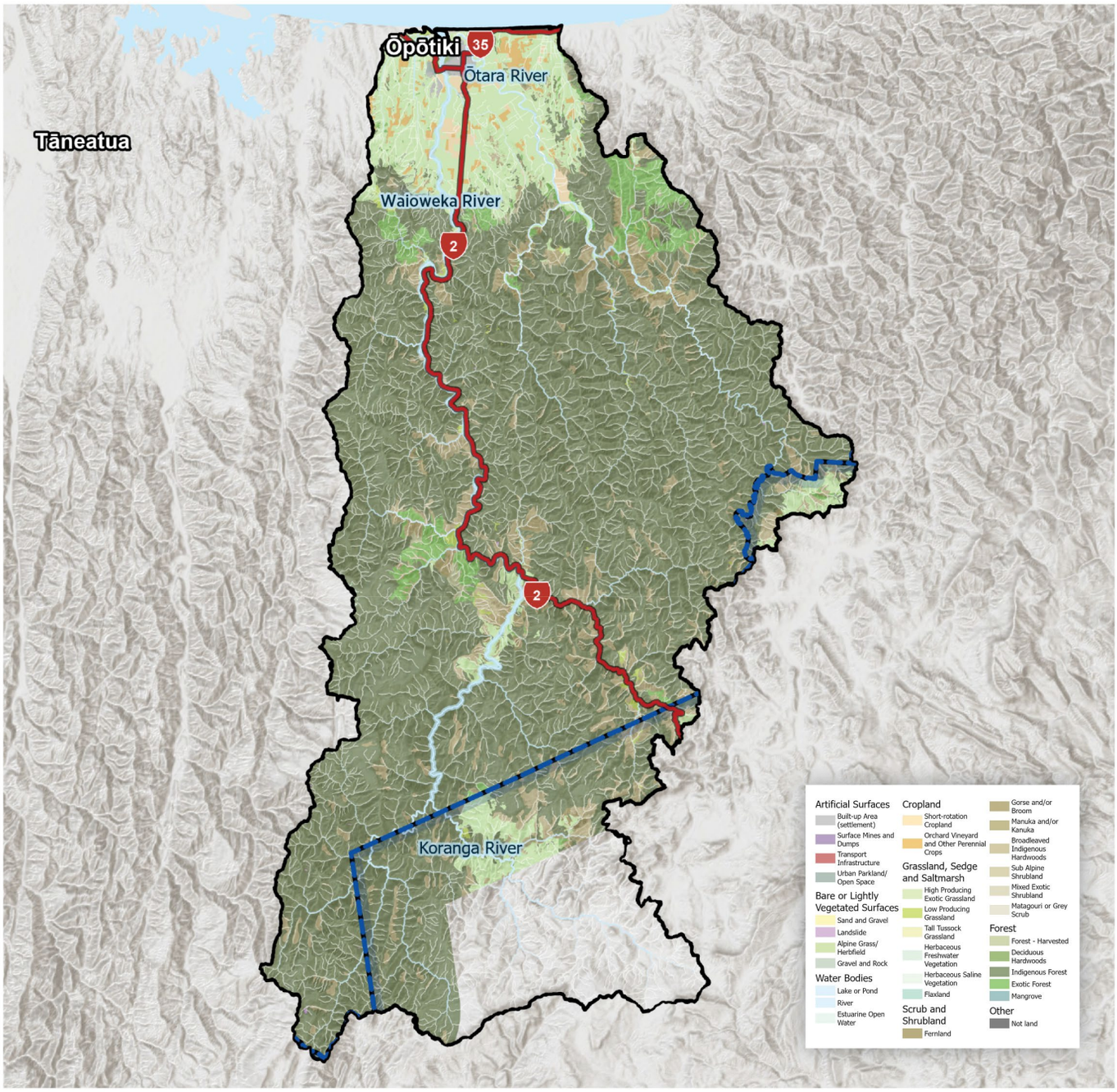
Ngā tauira o ngā rōpū whakahaere o te wai māori

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.



Waioweka-Otara - FMU Map

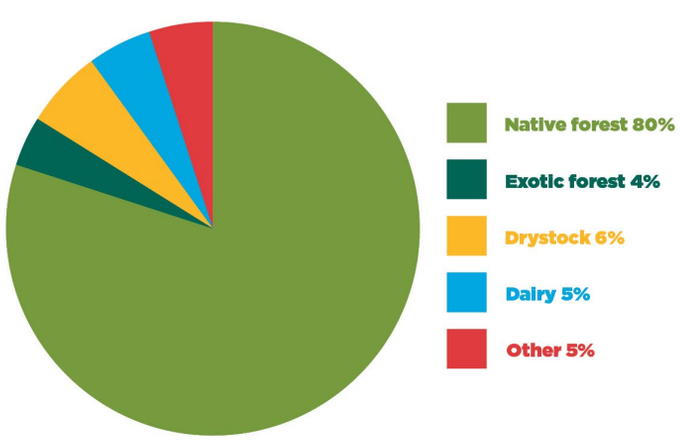
Land area:

123,277 ha

(97,658 ha within BOP)

Population:

7,000 people



Mō te Tauira o te whakahaere i ngā kāhui wai māori o Waioweka me Ōtara

About the Draft Waioweka-Ōtara Freshwater Management Unit (FMU)

The Draft Waioweka-Ōtara FMU covers an area of 123,277 ha, including the land in the Gisborne region, or 97,658 ha within the Bay of Plenty regional boundary. This FMU follows the catchments of the Waioweka and Ōtara rivers, as well as several small coastal streams (such as the Tirohanga Stream and the Te Karaka Stream).

The Waioweka River originates from the Koranga and Kahunui streams, which flow in a northerly direction from the Gisborne region, into the Bay of Plenty region. Both start in the Huiarau Ranges, flow north to the west of the Kahikatea Ranges, and meet at the Koranga Hut junction. The Ōtara River is formed from the confluence of two major streams (the Tutaetoko and Pakihi streams) that flow from the Raukumara Ranges. Both the Waioweka and Ōtara Rivers flow around the town of Ōpōtiki where they join before flowing out to the sea through a small estuary – the Waioweka (Ōpōtiki) Estuary, also know as the Pakihikura Estuary.

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. Ngāi Tūhoe, Te Upokorehe and Whakatōhea and associated hapū are part of this takiwa. Māori communities are based around hapū and marae, and are very closely connected through whakapapa.
- Approximately 5.6% or 6,800 ha of the FMU is Māori land[1] or part of Te Urewera (which is an entity in its own right, governed by Te Urewera Board). The dominant land use is native forest (97%).

Communities

- As of June 2022, the population of this FMU was estimated to be 7,000, concentrated mostly in Ōpōtiki.
- Community feedback so far has identified nine freshwater locations in the FMU with human contact, natural character and mahinga kai values.
- The Waioweka River, Oponae Stream, Pakihi Stream, Te Waiti Stream, Opato Stream/Manganuku, Wairata/Waioweka confluence were identified as popular swimming locations. The Waioweka River was recognised for its amenity value for people walking along the riverbanks.
- Most people were happy with the current state of their identified freshwater, but two responses noted the dumping of rubbish along the river and a popular swimming spot that seems polluted.

[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.

Land and land use

- Within the Bay of Plenty regional boundary, native forest is the dominant land use in the FMU (80%) and a significant proportion is owned by the Department of Conservation. 6% of the land area is drystock, 5% dairy and 4% exotic forest. Conversion to kiwifruit and avocado orchards has expanded rapidly over the last 5 years. Most of the pastoral and horticultural land use is in the lower altitude flood plain areas toward the coast. Within the Gisborne district, the upper catchments of some rivers include native forest as the dominant land use (59%), with 34% drystock and 5% deer.
- This FMU has sedimentary (non-volcanic) geology.
- Dairy farming and drystock farming in the Ōpōtiki District are estimated to contribute $23 million and $6 million respectively to the Bay of Plenty's regional GDP in 2020/21. Horticulture and other crops are estimated to contribute $43 million. This FMU contributes towards the Ōpōtiki District figures along with the Ōhiwa Harbour, Waiōtahe and East Coast FMUs.

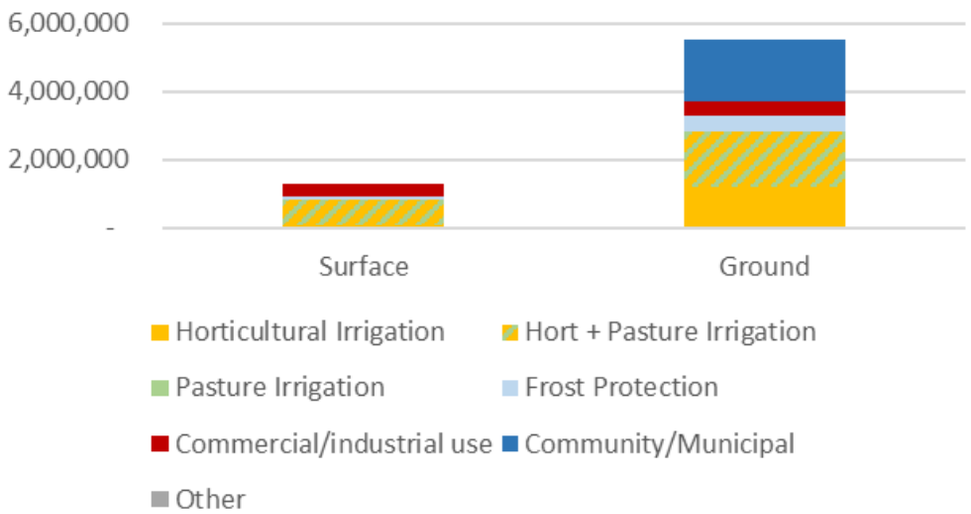
Rivers, streams, wetlands, and estuaries

- The whole Waioweka (Ōpōtiki) Estuary is identified as an "Indigenous Biological Diversity Area" and an "Area of Significant Cultural Value". The Huntress Creek area of the estuary has significant salt marsh and is important for whitebait. Sea grass beds also occur.
- The Waioweka River and its tributaries have been identified as having outstanding natural character.
- This FMU supports 10 freshwater related threatened species (including fish, birds, plants and other animals) and provides a habitat to whio. There are five areas with significant coastal biodiversity and eight priority biodiversity sites involve a river, stream, lake or wetland.
- Fish and game have identified the Wairata Stream, Waioweka River, Pakihi Stream, Wahaatua Stream, Koranga Stream, Kahunui Stream, Raetakahia Stream, Opato Stream and Ōtara River as locations where adult trout are present and/or spawn.
- There are 13 ha of wetland in the FMU (2% of the historical extent).
- The Waioweka-Ōtara River Scheme operates stop banks, pump station, flap gates and culverts to manage flood risk to rural and urban areas. The Huntress Creek Drainage Scheme drains land to enable agriculture, horticulture, settlement and infrastructure. Kukomoa Creek and Te Karaka Stream are managed as part of this scheme.
- In 2021, construction began on the Ōpōtiki Harbour development, which will enable all weather, all tide access in and out of the harbour. It involves constructing two sea walls either side of a new channel, dredged to a depth of about four metres, then the closure of the existing harbour entrance.

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 for horticultural irrigation and frost protection).
- As of January 2022, there were 48 water take consents in the FMU (Five surface water, 43 groundwater). The majority of consents and volume allocated is for primary industries (e.g., irrigation and frost protection), including one for a community irrigation scheme which supplies water for approximately 240 ha of horticultural land, plus for dairy farms and lifestyle blocks.
- Ōpōtiki District Council has two consented ground water bores to provide municipal water supply to Ōpōtiki.

- There are two commercial/industrial takes in this FMU. One is a groundwater take for a mussel processing plant in Ōpōtiki and the other is a surface water take from the Duke Street drain for metal washing and concrete batching.
- There are no major point source discharges in this FMU but there are 16 discharge consents to land, six On-site Effluent Treatement (OSET) discharge consents and 19 discharge consents to water.



Waioweka-Ōtara Resource Consents to take water – volume m^3/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. This would add stress to already limited water availability.
- 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.

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 The mauri and the mana of waterways in the Waioweka-Ōtara FMU are enhanced, where degraded, and rivers, streams, wetlands and the estuary contribute to the social, cultural and economic wellbeing of current and future generations.

1. Innovative and sustainable land and water management practices support food production and flood mitigation so that rivers and streams are safe for human contact and protect the health of freshwater and the highly valued coastal receiving environment.
2. Pest control in the DOC estate reduces sediment and E. coli loads into rivers and streams.

This vision is to be achieved by 2035.

Option B Mauri and the mana of rivers, streams, wetlands and the Estuary in Waioweka-Ōtara FMU are enhanced; habitats, riparian margins, and mahinga mataitai are restored or created and water contributes to the social, cultural and economic wellbeing of current and future generation. In the Waioweka-Ōtara FMU:

1. Recognise and restore the kaitiakitanga of and connections between tangata whenua and Waioweka and Ōtara Rivers, including applying traditional resource management mechanisms.
2. Continue to support healthy marine ecology.
3. In Te Urewera: Wai remains at the centre of life, in its natural state, for the benefit of future generations, and use is enabled only through agreed limits and constraints.

The vision is to be achieved by 2035.

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. 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 iwi and community feedback as well as our own research to identify the values we think matter most in this draft FMU. Online feedback for this FMU was limited but we have gleaned from published documents that people want water quality to be maintained or improved, where degraded, that safe potable water is important, that restoring whitebait spawning habitat and that the ever-present risk of flooding be managed.

Water in this FMU is important as drinking water for people and animals, for irrigation and food production, and for some commercial uses. Water supports a significant horticultural industry and is important for the livelihoods of local people. However, these outcomes are conditional on making sure its use does not damage ecological health or diminish mauri.

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 preserve the integrity of indigenous ecological systems and biodiversity and enhance and sustain the health of the wai as part of established and agreed limits. The volume and flow of freshwater bodies sustains aquatic life. Riparian margins are fenced off and planted, wetlands are created and protected, exotic species are removed, and native flora sites are re-established within the wider catchment to restore and enhance the habitats of taonga flora and fauna species. Diversity and abundance of desired aquatic species is maintained or improved, and pest species are controlled. Protect and enhance wetlands and saltmarshes. Preserve as far as possible the natural features and beauty of Te Urewera rivers, streams and wetlands, the integrity of its indigenous ecological systems and biodiversity.
Human contact	Water quality is maintained or improved to be suitable for swimming with a low risk of getting sick. 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	Taonga species are protected and restored including, ensuring their cultural health and continuation of associated mahinga kai practices and tikanga is provide for.

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*
	Significant spawning grounds of whitebait, fish and eels and traditional food and cultural resources are protected. Restore and protect the mauri of freshwater resources.
Natural form and character	Preserve the natural form and character of rivers, streams and wetlands, and associated landscapes, indigenous vegetation, and culturally important features and places including the Ōtara and Te Urewera.
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	Water quality and quantity provide for wai tapu and the tikanga associated with these sites and waters.
Transport and tauranga waka	(Not a known value of rivers and streams in this FMU).
Fishing	Protect and enhance freshwater fisheries resources and habitats.
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.

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.

Estuary health

The main estuary attributes we measure are mud content, algae and seagrass cover, and sediment nutrients – like nitrogen and phosphorus. Like the NPSFM, the New Zealand Estuary Trophic Index (ETI) has a grading system that uses the same A-D bands.

The current ecological health of Waioweka (Ōpōtiki) Estuary is assessed as having a moderate level of eutrophication (B grade). It has low abundance of macroalgae (which is good) but has a high percentage of the estuary covered in soft, muddy sediment (which is not good for ecosystem health). There has been loss of seagrass cover over time from the Huntress Creek area. Further changes to estuarine ecology may occur in the near future with the development of the Ōpotiki Harbour entrance.

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.

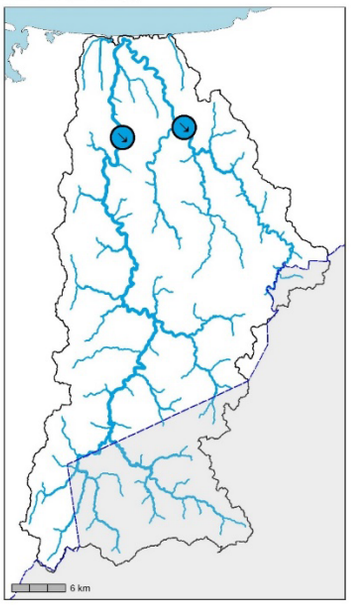
The Bay of Plenty Regional Council has two monitoring sites in the Waioweka-Ōtara FMU to measure states and trends in river and stream water quality. These two sites provide data for the upper (largely forested) catchment and do not reflect the impacts of intensive land use in the lower catchment. In 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 a sense of states 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. Whilst not toxic, 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, but are showing improving trends. The high phosphorus is likely from the volcanic influence in the area, although human activity will be adding to this.

Measured suspended fine sediment is in the A band. One site has an improving trend and the other is indeterminate. Lowland river and stream health is likely to be poorer.

Nitrate (toxicity)



Regional boundary

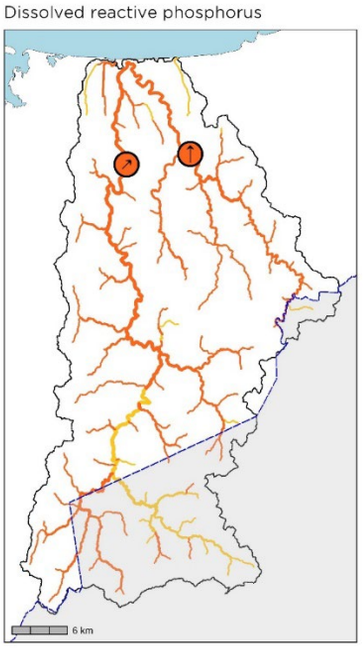
FMU boundary

Estimated state
A
B
C
D

Monitored state
A
B
C
D

Monitored trend
↑ Very Likely Improving
↗ Likely Improving
→ Indeterminate/Uncertain
↘ Likely Worsening
↓ Very Likely Worsening

Dissolved reactive phosphorus



Regional boundary

FMU boundary

Estimated state
A
B
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Monitored state
A
B
C
D

Monitored trend
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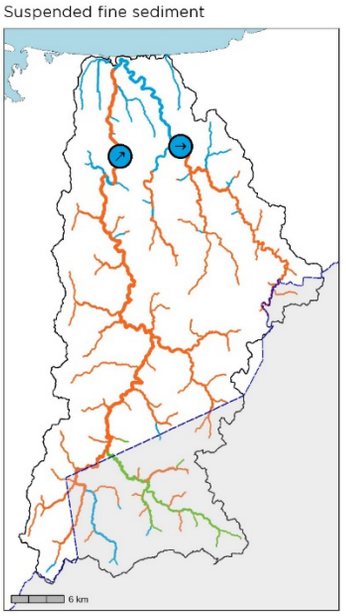
↗ Likely Improving
→ Indeterminate/Uncertain
↘ Likely Worsening
↓ Very Likely Worsening

Suspended fine sediment



Regional boundary

FMU boundary

Estimated state
A
B
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Monitored state
A
B
C
D

Monitored trend
↑ Very Likely Improving
↗ Likely Improving
→ Indeterminate/Uncertain
↘ Likely Worsening
↓ Very Likely Worsening

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 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 (QMCI) and Average Score Per Metric (ASPM); check out our Water Ecology Tool at www.boprc.govt.nz/wet for more information.

Fish surveys show 17 fish species recorded in this FMU, 13 of these are native. Longfin and shortfin eels, common and redfin bullies, torrentfish and inanga were the most common and expected to have a wide distribution across this FMU. Shortjaw kōkopu are the only known threatened fish species found here (back in 1996), with no recent sightings. Rainbow trout are relatively common, and other introduced fish include brown trout and mosquito fish.

The Council has two macroinvertebrate monitoring sites in this FMU. Both of these sites are in catchments dominated by native forest, and MCI, QMCI and ASPM are in the B band.

Nutrients like nitrogen and phosphorous can promote plant, weed and algal growth in rivers and streams. In the Waioweka-Ōtara FMU this is generally not an issue, and two monitored river sites were in the A band for periphyton biomass (weed growth), with one in the B band (but near the threshold for A band).

Human contact

Elevated levels of faecal bacteria from animal dung, human wastewater seepage 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 other bacteria that could be present. Faecal coliforms and *enteorococci* are the bacteria we measure in estuaries and the sea. Find out more about how we monitor river health, here.

The Council has one estuary and three freshwater recreational bathing monitoring sites located within this FMU. The estuary and upper catchment sites are generally safe for swimming – in the B band. Of the two downstream sites, Waioweka at SH2 is in the D band and Ōtara at SH35 is in the C band, which means there is a slightly higher risk of getting sick if you swim or wade there. All three sites have occasional increases in bacteria after rainfall. This means most of the time over summer there is only a very small risk of getting sick but there is higher risk if you swim or wade after rainfall.

There are no BOPRC shellfish or other mahinga kai monitoring sites within the Waioweka (Ōpōtiki) Estuary presently as shellfish numbers are very low and are not known to be gathered.

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 and the tikanga (practices) of collecting or harvesting them. This value is demonstrative of tangata whenua connections, responsibilities and kaitiakitanga obligations, and can be found in stream and out of stream. It is important because the loss of these species and associated tikanga can have a profound effect on the communities who rely on them.

The Waioweka River in Ōpōtiki was identified for its whitebaiting value in online community engagement. There are significant spawning grounds of inanga/whitebait, fish and eels, and traditional food and cultural resources within the Whakatōhea rohe.

We recognise the importance and value that tangata whenua and kaitiaki in the FMU place on mahinga kai, traditional materials, sources and gathering sites throughout the FMU. How tangata whenua and kaitiaki assess, understand and care for wai māori is critical to understanding and providing for the health of the mahinga kai compulsory value. We welcome any information tangata whenua wish to provide.

Where do contaminants come from?

Dairy, drystock, and horticulture are the main sources of nitrogen and phosphorus loads in this FMU. The sediment load from the small area of drystock farming is estimated to be disproportionately high, almost as much as from native forest, which covers a much greater area. Gully erosion is the dominant erosion process. Native forest contributes most of the *E. coli* load (due to it covering 85% of the FMU) but the proportion coming from forest is low compared to its proportion of total land area, whereas dairy and drystock contribute substantially more relative to their land area. There are no major commercial or industrial point source discharges in this FMU.

In forests, feral and pest animals can make sediment and *E.coli* losses worse. Some parts of the FMU (in native forest and drystock) have steep, erodible land that is more susceptible to erosion.

Freshwater health issues for this FMU

High loads of sediment from steep, highly erodible land in drystock and native forest land uses affects Waioweka (Ōpōtiki) Estuary ecosystem health.

Sediment settling out creates soft, muddy substrate that smothers seagrass and other species in the Huntress Creek area of the Waioweka (Ōpōtiki) Estuary. Climate change impacts are likely to increase this problem significantly over time. Actions to reduce sediment load are needed to support the estuary, and would also reduce phosphorus. Feral animal control may help to reduce erosion from native forest areas, but otherwise options are limited in these areas. The potential impacts of the harbour development are not yet understood.

Bacteria from animals wash in to water during heavy rainfall and raises the risk of getting sick at human contact recreation sites, particularly in lower catchment swimming sites. This could become more frequent in the future as more frequent heavy rainfall events are expected, if this is not managed more effectively. Feral animal sources from native forest areas are likely to be a significant contributor. Drystock and dairy farming areas also contribute a significant amount.

River water quality is good at the lower boundary of native forest areas, but lowland river, stream and estuary water quality and ecosystem health is likely to be poorer. Nitrogen levels are low at monitored sites at the moment, but some worsening trends are indicated. There is little long term monitoring information to understand what is happening in rivers and streams in lower catchment farmed areas, or in the estuary. Based on studies in other FMUs, the water quality and ecological health lowland river and stream quality and ecosystem health will be compromised. While a large proportion of nitrogen may be coming from the native forest areas, dairy and drystock contribute disproportionately greater compared to land area. Likewise, some phosphorus load will be naturally occurring, and some will also be from farming land uses. Effort to “hold the line” and to monitor would avoid future effects on ecological healh of the river or estuary.

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 thier 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).

Phosphorus results are poor (D band). However, this is likely to be naturally elevated to some extent, and further work is under way to estimate this so that we set a reasonable target. For the estuary, we need to at least ensure nitrogen and phosphorus don't increase.

E. coli state to improve for contact recreation.

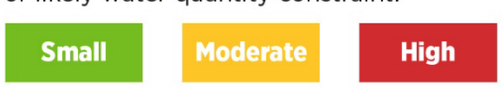
Sediment loads reaching the estuary need to be reduced to reduce mud content of Waioweka (Ōpōtiki) Estuary.

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 this FMU a timeframe of 10 years is suggested.
- 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.

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



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 rivers and streams, lakes and wetlands.
- 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 policy options

National regulations will help address the issues. However, we think some additional actions may be needed. Options we are exploring for this FMU could include:

- Expecting and being clear about what 'good management practice' is. We may set out minimum requirements for Freshwater Farm Plans across the region and encourage continual improvement.
- Reduce erosion by retiring steep gullies from forestry, reducing stocking rates or removing stock from steep land (>25 degrees), and planting native species (especially in gullies and riparian areas).
- Potentially putting in sediment control bunds in appropriate locations.
- Reducing the amount of nutrients and bacteria from animal droppings that can enter rivers and streams by promoting good management practices such as fencing stock away from rivers and from drains, retiring high risk areas and reducing pest animals in our forests.
- Ensuring that any dams, culverts, or other man-made structures in rivers and streams are so that fish can still swim up and downstream.
- Improving stream ecosystem health by riparian planting.
- Making sure plantation forestry is better planned and managed at planting and harvest.
- Keep the nutrient levels in rivers low by encouraging good management practices, especially in lowland farms.
- Supporting Gisborne District Council to manage farming activities in their parts of the upper catchments.

Before any of these suggestions are proposed as rules in our regional plan, we need to assess their appropriateness, effectiveness, and 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 and streams, or in lakes. Across the region, water is taken for different uses, and is usually taken with a pump connected by pipe to river 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 and macroinvertebrates 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 them, on the community, economic development and possible land use in the catchment.

How can we meet the outcomes we seek?

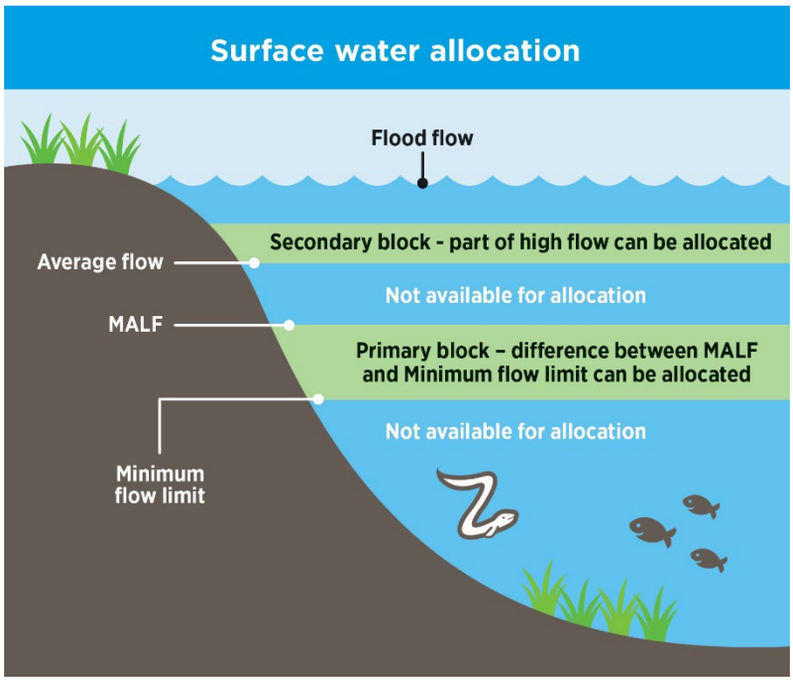
Our main tool for managing water quantity is the setting of minimum flows (limits to achieve the desired level of environmental protection).

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 three rivers and streams in this FMU, we now have 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 a river or stream. 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 streams are over allocated. The NPSFM requires us to phase out 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.

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?

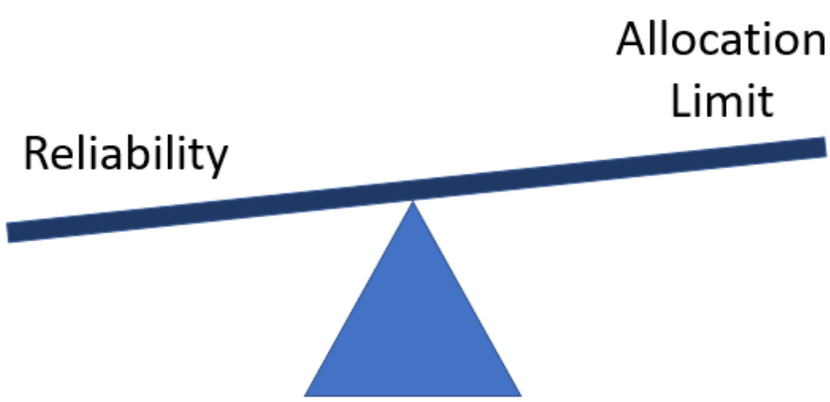
Water use

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 set at 10% of the 1 in 5-year low flow. Based on these allocation limits, no rivers and streams are currently 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 would be below the minimum flow if takes continued). 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 to users, 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 this 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

Surface water demand in this FMU is moderate and there is capacity for further allocation if the proposed ecological minimum flow and allocation limit is set. The upper reaches are identified by Fish & Game as important trout fishing or spawning areas. The minimum flow is informed by scientific studies and provides a habitat protection level of 95% for trout.

In this FMU groundwater is a more heavily used resource and there is low to moderate pressure on the key streams .

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.

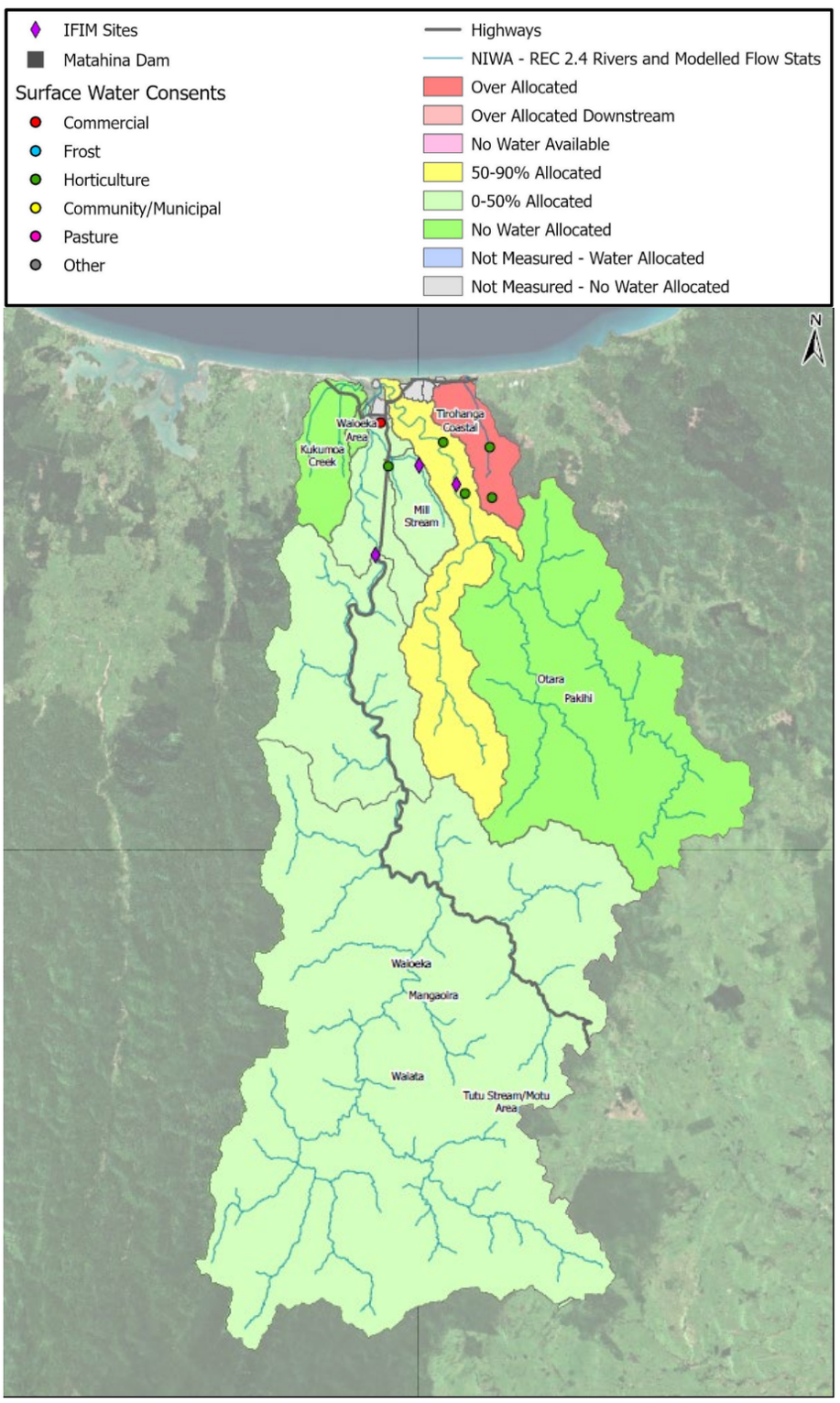
Essentially, we are keen to know what you think of the Habitat Retention Levels in the table above. We could make them more protective, which would mean water takes would have to be restricted or stop more often, or less restrictive, posing a risk that low flows may reduce usable habitat for some fish.

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

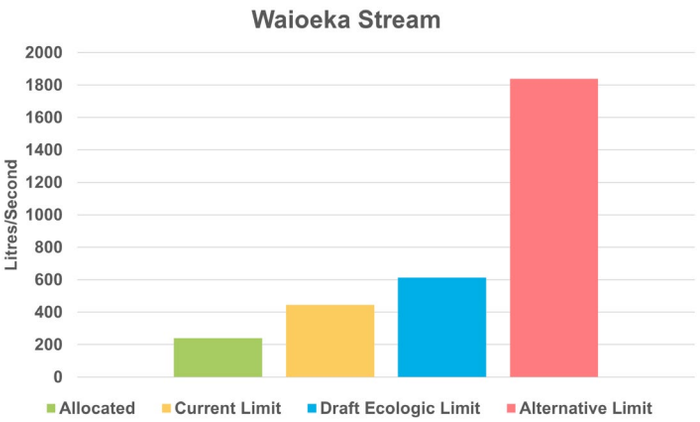
Our next choice concerns how much water to allocate and the effect of this on reliability for users. We propose that the allocation limit should be the difference between the Mean Annual Low Flow (MALF) and the ecological minimum flow (that provides the habitat protection levels noted above. The map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

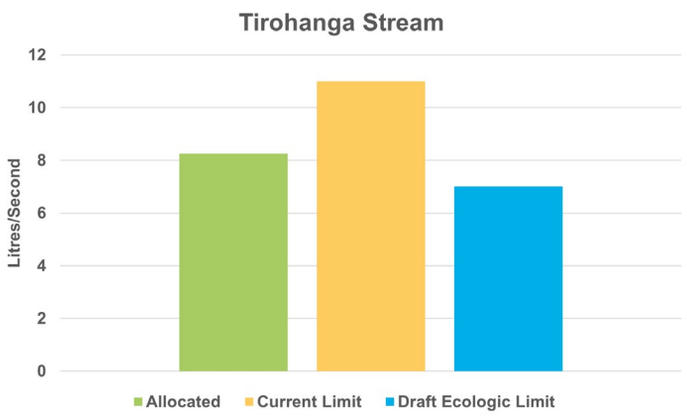
Option set 3: Primary and Secondary Block

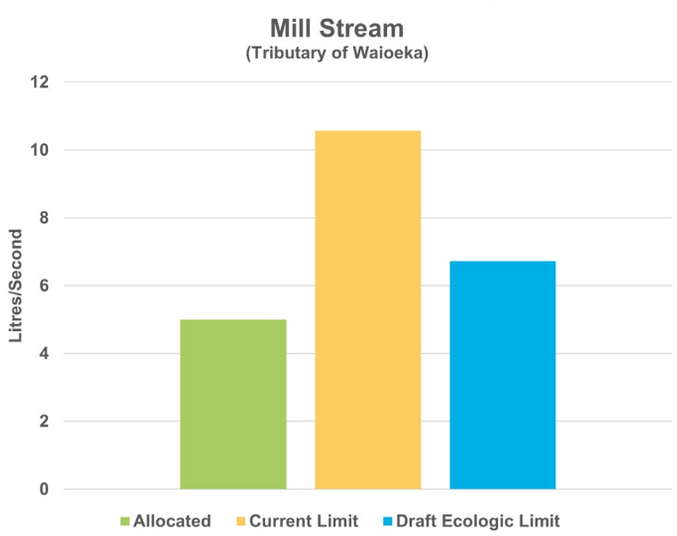
We could allocate a lot more water (maybe twice as much) if we allocate a secondary block that can only be taken during periods of high flow. In this situation, users of the secondary block would probably need storage dams to provide reliable access to water during dry periods, because there will be more days when the allocated water cannot be taken.



Allocation status based on draft ecological minimum flows, and an 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), and draft ecological allocation limit (total allocable flow using the difference between the Mean Annual Low Flow and the ecological minimum flow).

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 relates to how they will affect surface water features such as wetlands, rivers and streams.

The alluvial basin associated with the Waioweka and Ōtara Rivers comprises river sediments underlain by marine sediments and mudstones near the coast. Groundwater is generally taken from a highly productive alluvial gravel aquifer via shallow bores (typically <40 m deep). The shallow depth and high transmissivity of this aquifer means there is likely to be a relatively high degree of connectivity with rivers and streams. River leakage may provide a source of aquifer recharge in the basin, especially with increasing abstraction pressures.

An important concern for this area is that excessive groundwater abstraction may cause localised stream depletion. Smaller tributaries would be more sensitive to localised stream depletion than the larger rivers.

There is little groundwater development in inland areas due to geology, terrain, land use and generally poor groundwater yields

Issues

There are a number of challenges in this FMU including:

Relatively high volumes of groundwater take. While recharge estimates are in the process of being developed for this FMU, the total groundwater allocation of 5.3 M m3/year is relatively high compared to surrounding FMUs. Allocation density across the portion of the FMU containing productive aquifers (less than 100 km2) is at least 53,000 m3/km2 /year or 53 mm/year. Depending on how the FMU is subdivided into groundwater management zones, some areas may have the potential to be nearing their allocation limits.

Groundwater/surface water connectivity. As noted earlier, abstraction is predominantly via shallow bores with likely groundwater-surface water connectivity which creates the potential for localised stream depletion, either as a result of large takes, or in areas of concentrated demand. As little groundwater is available for allocation from deeper units, there are few options but to carefully assess surfacewater impacts.

Saline intrusion. Because a lot of the total water take comes from near the coast, saline intrusion is an important risk to consider, especially from large or concentrated takes near the coast.

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 and what is used. This is because allocation status (whether an area is overallocated or not) is calculated based on what is allocated in a consent and therefore allowed to be used (not what is actually used).

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 risk is to be managed depends to some extent on modelling in others part of the region (which may help confirm a standard approach), and community 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
- Restricting development in some at-risk coastal areas where alternative water supplies are not feasible
- Promoting water conservation especially within at-risk areas
- Allowing takes, but enforcing 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)

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. Allocation limits may need to be set conservatively near the coast to avoid cumulative saline intrusion.

Surface water/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. For example, should we encourage deeper bores when the availability of groundwater in shallower bores is running out or remain silent and let people make their own choices.

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.

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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