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

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

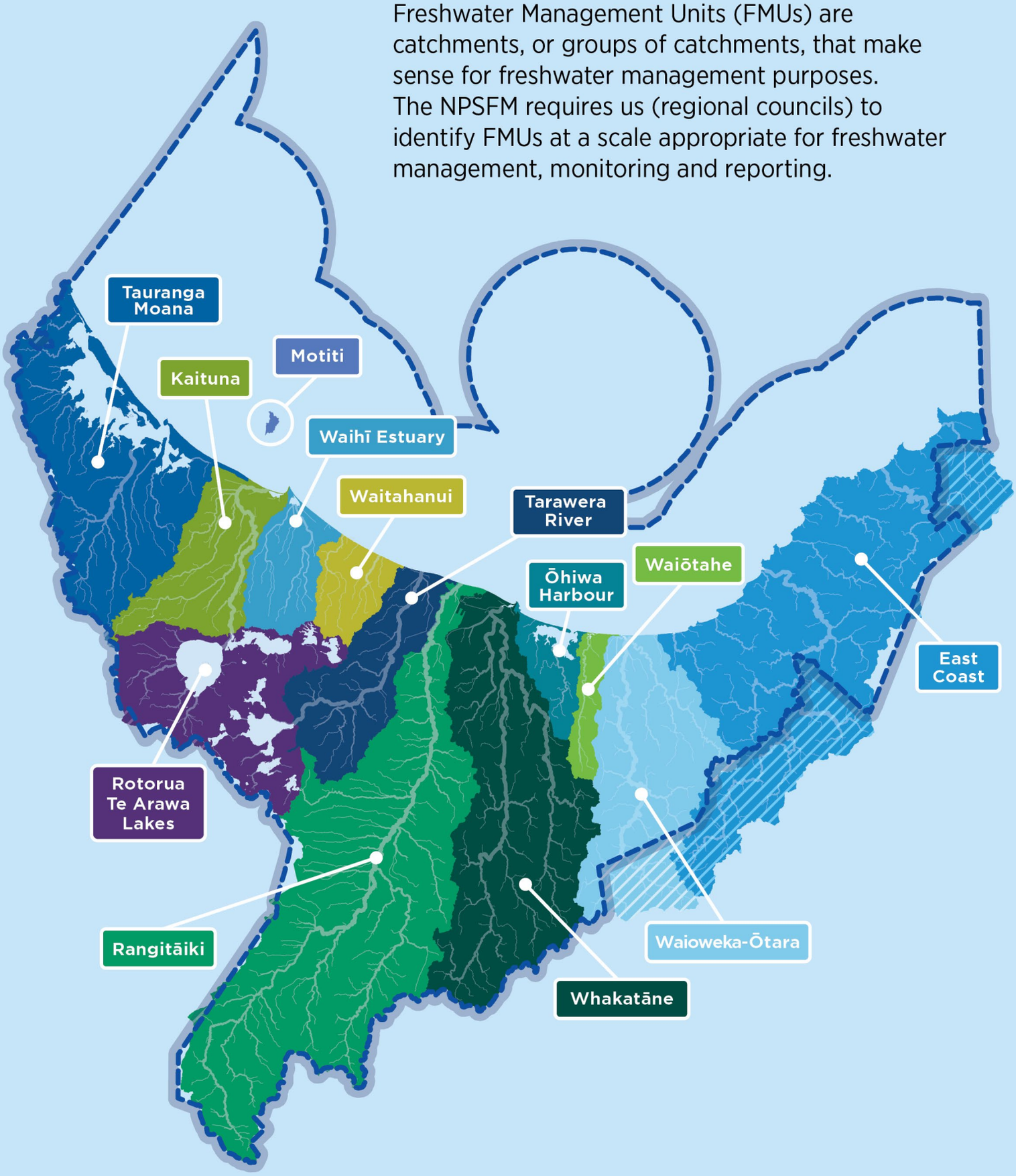
For more info

- 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**

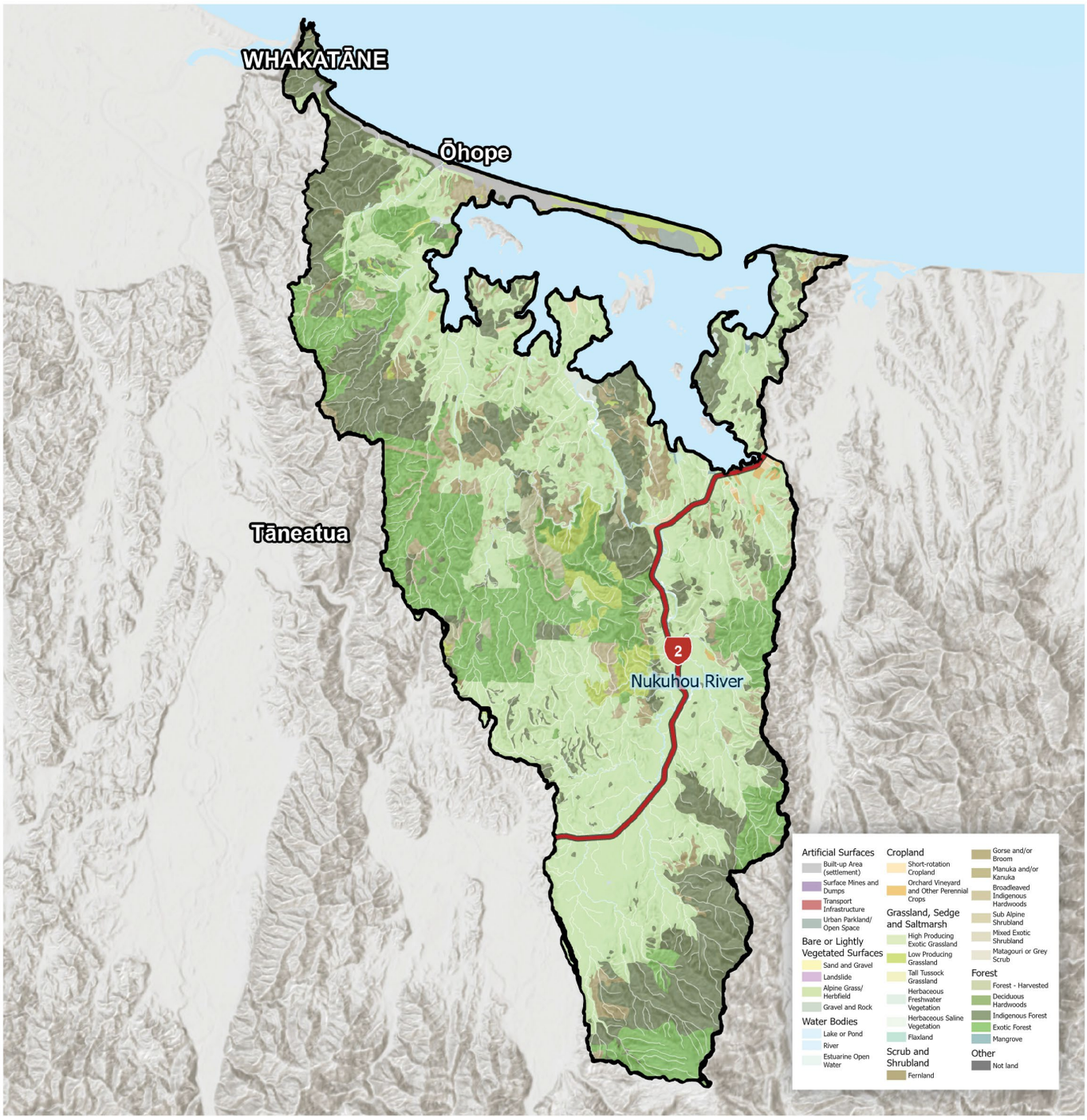
Ngā tauira o ngā rōpū whakahaere o te wai māori

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.



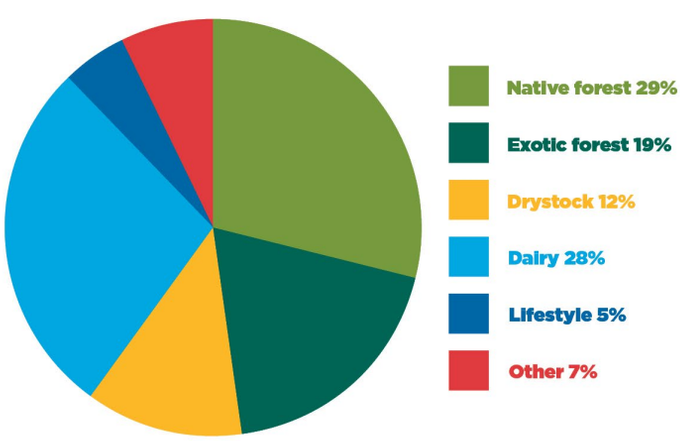
Ōhiwa - FMU Map

Land area:

18,754 ha

Population:

4,920 people



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

About the Draft Ōhiwa Harbour Freshwater Management Unit (FMU)

The Draft Ōhiwa Harbour FMU covers an area of 18,754 ha and includes the catchments of Maraetōtara, Waiotahe, Wainui and Kutarere streams as well as the Nukuhou River (which drains 60% of the catchment). All discharge into the Ōhiwa Harbour, except Maraetōtara which flows directly out to the coast at Ōhope.

The harbour itself covers an area of approximately 2,640 ha, and is relatively shallow, exposing 80% of its bed at low tide. The harbour is separated from the Pacific Ocean by the 6 km long Ōhope sand spit on the western side of the harbour entrance, and the much smaller (900 m) Ōhiwa Spit to the east.

There are 10 small islands in the harbour. Four of the islands cover less than one hectare each.

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

Tangata whenua

- There are significant whakapapa, cultural and historical connections and responsibilities for tangata whenua within this FMU who include Whakatōhea, Te Upokorehe, Ngāti Awa and Ngāi Tūhoe and associated hapū. Māori communities are based around hapū and marae and are very closely connected through whakapapa.
- Ōhiwa Harbour is identified as containing areas of significant cultural value under the Regional Coastal Environment Plan.
- The Ōhiwa Harbour Implementation Forum is a joint (non-statutory) committee with members from Te Rūnanga o Ngāti Awa, Te Upokorehe, Waimana Kaaku – Ngāi Tūhoe and the Whakatōhea Māori Trust Board as well as Councillors from Ōpōtiki and Whakatāne District Councils and Bay of Plenty Regional Council. Together they oversee the Ōhiwa Harbour Implementation Strategy.
- About 12% of the Draft Ōhiwa Harbour FMU land area, or 2,208 ha is Māori owned land[1] where the predominant land use is native forest (44%) and dairy (37%).

Communities

- As of June 2022, the resident population of the FMU was estimated to be 4,920 and concentrated mostly along Ōhope Beach.
- Community feedback so far has identified only a few freshwater locations in the Draft FMU with human contact and wai tapu values. Concerns were raised through online engagement around the lack of mangrove control, the loss of wading bird habitat, water quality, siltation, overfishing, recreational activities disturbing bird species, freedom campers and a lack of access for boaties.
- There are active community volunteer care groups in this Draft FMU.

[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

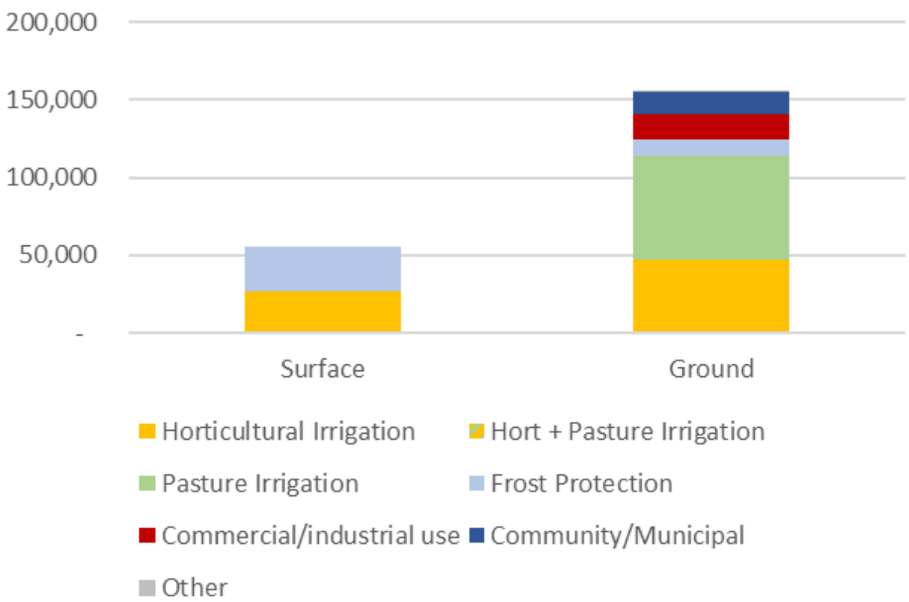
- Similar land area of the FMU is in native forest (29%) and dairy (28%) land uses, and there is also 19% exotic forest, 12% drystock, and nearly 5% in lifestyle blocks.
- The geology of this FMU is largely non-volcanic sedimentary material, and the hill country includes very steep, erodible land.
- The FMU straddles the Whakatāne and Ōpōtiki Districts, so contributes a small amount towards the economic figures of both districts. Horticulture and other crops in the Whakatāne and Ōpōtiki Districts are estimated to contribute $71 million to the Bay of Plenty's regional GDP in 2020/21. Agriculture in the Whakatāne District is estimated to contribute $134 million and agriculture in the Ōpōtiki District is estimated to contribute $29 million.
- Onekawa Te Mawhai Regional Park on the headland between the Ōhiwa Harbour and Bryans Beach, was opened by the Upokorehe hapū and the Bay of Plenty Regional Council in 2010.

Rivers, streams, wetlands, and estuaries

- There are 37.7 ha of freshwater wetland in the FMU (8% of the historical extent).
- The FMU supports ten freshwater related threatened species (including fish, birds, plants and other animals). There are 42 areas with significant coastal biodiversity and six priority biodiversity sites involving a water body within this FMU. The main streams and tributaries in this FMU support a range of indigenous fish species.
- Ōhiwa Harbour is identified as containing outstanding natural features and landscapes under the Regional Coastal Environment Plan.
- The Harbour is valued for it's kaimoana – flounder, shellfish and native freshwater fish. We are less clear on whether the community and tangata whenua fish in the freshwater bodies in this FMU and what species they value (outside of eels mentioned above).

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, frost protection and stock watering).
- As of January 2022, there were only five water take consents in the Ōhiwa Harbour FMU (Four ground, one surface water). The surface water consent and one of the groundwater consents are for horticultural irrigation and frost protection. The other three groundwater consents are for irrigation of a golf course, a community supply and a dairy farm.
- There are three bores that provide drinking water for Hiwarau, Kutarere and Bryans Beach communities.
- There are no major point source discharges in this FMU but there are eight discharge consents to land, six on-site effluent treatment (OSET) discharge consents and 11 discharge consents to water.



Ōhiwa Harbour FMU Resource Consents to take fresh water – volume m^3/year

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

- Climate change estimates are that sediment runoff to the harbour will increase substantially over time due to more frequent extreme rainfall events. Effort now to manage steep erodible slopes carefully and keep soil on the land will reduce risk of damage and loss for landowners and also reduce impacts on Ōhiwa Harbour.
- Under 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.

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 Sustain and enhance the landscapes, natural beauty, water quality, ecosystem, customary and recreational activities, heritage places and values, and productive land of the Ōhiwa Harbour and its catchment.

1. Restore and sustain the abundant food resources such as the mussel reefs in Ōhiwa Harbour.
2. Ōhiwa Harbour's soft-bottomed mud content is at levels that allows the ecosystem to thrive.
3. Innovative and sustainable land and water management practices support food production so that waterways and the Ōhiwa Harbour are safe for human contact, mahinga kai thrives and ecosystem health is enhanced.

This vision is to be achieved by 2045.

Option B Together, sustain and enhance the landscapes, natural beauty, water quality, customary and recreational activities, heritage places and values, and productive land of the Ōhiwa Harbour and its catchment. The Ōhiwa Harbour FMU will:

1. Maintain and enhance the health and natural qualities of Ōhiwa Harbour.
2. Ensure the water quality and quantity is available to sustain the lives of future generations.
3. Provide healthy and abundant mahinga kai resources.
4. Reduce sediment entering the harbour waters and reduce sediment accumulation in Ōhiwa Harbour.
5. Protect and restore biodiversity values and ecosystems in and around the harbour.
6. Protect sites of significance to Māori.
7. Safeguard the mauri of the water.

The vision is to be achieved by 2045.

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. These include the importance of drinking water, traditional resources, taonga species, wai tapu, te mauri o te wai, culturally significant sites and tauranga waka. Improvements were sought to the state of all values identified with the exception of animal drinking water supply. Concerns raised by some people included the lack of mangrove control and its impact on wading birds, water quality, siltation, overfishing, recreational activities disturbing bird species, freedom campers and a lack of access for boaties. Ōhiwa Harbour is an important receiving environment and features in many peoples stated outcomes.

Water is important for the livelihoods of local people, but the outcomes people stated suggest we must make sure its use does not damage ecological health or diminish mauri, and that we must look to effects on the harbour as much as effects in freshwater.

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

Freshwater Values *The ways fresh water is important* *Shaded values are compulsory national values in the NPSFM*	**DRAFT Environmental outcome** *How we would like the values to be*
Ecosystem health	Water quality is maintained or improved, where degraded, to sustain aquatic life and enhance the health of Ōhiwa Harbour and assist in achieving Objective 7 of the Regional Coastal Environment Plan. The volume and flow of freshwater bodies sustains aquatic life. Riparian margins and wetlands are managed and enhanced where pest species are dominant to support thriving taonga flora and fauna species. The diversity and abundance of birds and other fauna is maintained or improved and pest species are controlled. Protect and enhance the wetlands and saltmarshes.
Human contact	Water quality is maintained or improved to be suitable for swimming with a low risk of getting sick and access along river edges is maintained or enhanced for recreational opportunities.
Threatened species	Protect critical habitat to support the presence, abundance, survival, and recovery of threatened species.
Mahinga kai	The mauri of Water within freshwater bodies and the Ōhiwa Harbour provides for the cultural health of taonga species and the continuation of mahinga kai practices and associated tikanga.
Natural form and character	Preserve and encourage indigenous vegetation along riparian margins and reduce sediment in the rivers and streams which may impact on the outstanding natural features and landscapes of Ōhiwa Harbour.

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*
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	Maintain and enhance public access to and along rivers while ensuring that threats to natural heritage, safety and security values caused by public access are minimised.
Fishing	Restore and enhance freshwater and ocean fisheries and habitats.
Animal drinking water	Farmed animals have sufficient, reliable, safe 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.

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.

Estuary trophic state for Ōhiwa Harbour is graded in the B band, indicating a state of moderate eutrophication. The impact of mud on the harbour has been graded in the D band due to the significant impact of fine muddy sediments in the upper regions. Seagrass extents are decreasing from historical distributions, and mangroves are expanding due to the increasing mud content. Macroalgal cover is currently low, but occasional algal blooms are likely in the intertidal regions.

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.

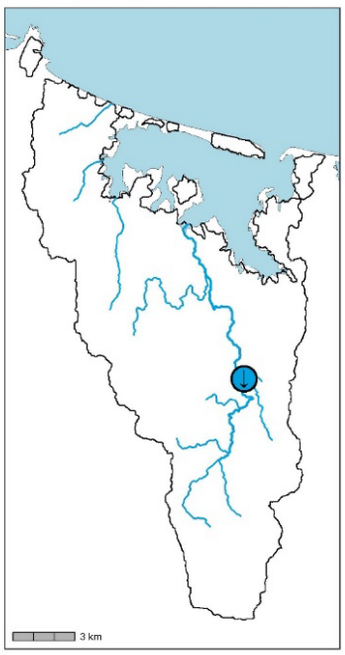
The Bay of Plenty Regional Council has one monitoring site in this FMU to measure states and trends in river and stream water quality. This site is on the Nukuhou River at Glenholme Road, reflecting farming and forested catchment above, and not reflecting agricultural land use downstream. In areas where 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 excess plant, weed and algal growth in rivers, streams and estuaries.

Measured dissolved reactive phosphorus concentrations are high – in the D band. The high phosphorus is likely from the natural volcanic influence in the area, although human activity will be adding to this, and it is showing a worsening trend.

Measured suspended fine sediment is in the A band, but shows a worsening trend. Large wet weather events can contribute harmful pulses of sediment that may not be reflected in this data. Impacts of sediment bought in from rivers and settling out within Ōhiwa Harbour is of particular concern.

Nitrate (toxicity)



Regional boundary

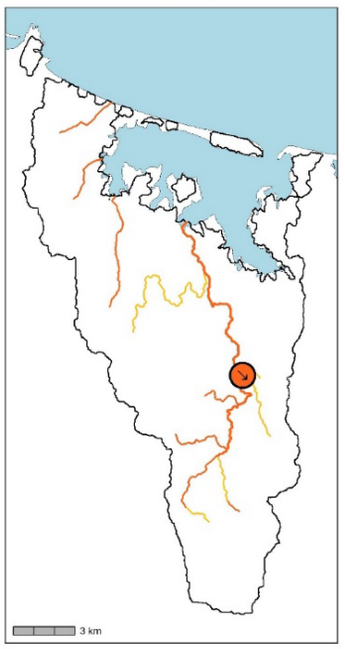
FMU boundary

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

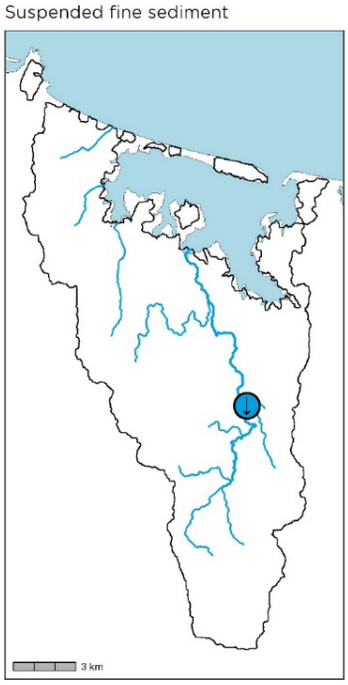
FMU boundary

Estimated state
- A
- B
- C
- D

Monitored state
- A
- B
- C
- D

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

Suspended fine sediment



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

River and stream aquatic life for ecosystem health

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

Fish surveys show 15 native fish species recorded in this FMU, and one pest species. Longfin and shortfin eels, redfin bullies and banded kōkopu were the most common. There were also three records of the threatened shortjaw kōkopu. Many of the fish species present are migratory, meaning any barriers could restrict fish passage.

The Council has seven macroinvertebrate monitoring sites in the Ōhiwa Harbour FMU to measure state and trends in river health. A range of MCI states have been observed, mostly in the B-C bands. Forested areas were generally better than pasture. Lower ecological health at some sites was thought to reflect a mixture of sedimentation from land use changes and localised pumice geology, with highly mobile beds and easily eroded banks.

No sites are monitored for periphyton biomass in this FMU. Plant, weed and algal growth Is expected to be low, reflecting the dominance of soft-bottomed streams in this area.

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.

There are no monitored freshwater recreational bathing sites in the Ōhiwa Harbour FMU, but there are three coastal sites and one estuary site. Swimming water quality is in the A band at all of these sites. This means most of the time over summer these sites are safe for swimming, but there is still a risk of getting sick if you swim or wade after heavy rainfall.

Long term monitoring at one site on Nukuhou River shows poor results (D-E band) for *E. coli,* indicating heightened risk for human contact activities like swimming.

Mahinga kai

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

The Harbour is valued for its kaimoana – flounder, shellfish and native freshwater fish with the Nukuhou River being an important freshwater mahinga kai source. The Council has three monitoring sites for shellfish harvesting around the estuary: Ōhiwa Harbour at Reserve (Boat Ramp), Ōhope at Surf Club, and Ōhope Beach opposite Moana Street. Monitoring over the past five years has shown that water quality is generally safe for shellfish gathering/mahinga

kai at the Ōhope sites, but the Boat Ramp site has had some exceedances. Further investigations have not yet been able to confirm the reason for this.

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. Identifying these and understanding how tangata whenua and kaitiaki understand, assess and care for wai māori is critical to understanding and providing for the health of the mahinga kai compulsory value.

Where do contaminants come from?

All land uses contribute to Nitrogen, Phosphorus, *E. coli* and suspended sediment loads. The majority of rivers and streams in this FMU flow through catchments that have either agriculture or plantation forestry. Based on estimates by the Expert Panel, dairy land use contributes the majority of the total nitrogen and phosphorus. Dairy is also estimated to contribute disproportionately more *E. coli* compared to land area in this FMU, while drystock contributes more sediment compared to land area.

Within each land use, there will be a range of practice on each property. There are also some areas of land naturally have a higher risk of losses. For example, steeper land with higher rainfall often has higher risk of sediment and *E. coli* runoff over land. Wet areas, overland flow paths, porous soils, and drainage areas pose greater risks that contaminants will enter rivers, streams, wetlands, groundwater and/or the estuary.

Large parts of the catchment are steep and erodible. Modelling estimates that the total suspended sediment load delivered to the harbour each year is about three times greater than what would occur under natural land cover. Shallow landslide has been identified as the dominant erosion process.

Freshwater health issues for this FMU

Sediment loss affects river water clarity and ecosystem health, as well as estuary ecosystem health. Sediment loss, particularly from pastoral land uses and plantation forestry harvest and recently harvested areas is affecting ecological health of the Ōhiwa Harbour. Much of the land is very steep and erodible. Seagrass extents in the Harbour are declining, and mangroves are naturally expanding into the muddier substrates. Climate change impacts are likely to increase this problem significantly over time. Sediment load reduction is required to support the Harbour.

Faecal contaminants from animals runs off the land into water during heavy rainfall and can make shellfish unsafe to eat from the harbour, and safe thresholds for swimming at harbour bathing water quality sites are breached occasionally. Risk of infection for human contact is also elevated in the Nukuhou River due to faecal contaminants.

Ōhiwa Harbour ecological health will decline if worsening nutrient concentrations continue. Current nutrient loads are likely to be only slightly impacting harbour ecological health. However, “very likely worsening” trends for nitrate and “likely worsening” for DRP trends are indicated at the Nukuhou monitoring site. Indications are that nutrient loads need to be held at current levels or reduced to support the harbour. These contaminants are generally sourced from pastoral farming land uses. It is estimated that dairy farming land use is the predominant source of these contaminants.

Macroinvertebrate life is compromised in pastoral catchments, which is likely to be due to multiple stressors including stock access to rivers, lack of riparian shade, contaminant loads, and so forth. This is generally a region wide issue.

Cultural indicators of health. We know there will be important cultural indicators that can provide a deeper understanding of wai ora, but don’t have much information about these. We welcome any information tangata whenua wish to provide.

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).

Ōhiwa Harbour mud content and faecal contaminants need to reduce, and nutrients should not increase. Indicated load reductions for the Harbour are:

- A 15% sediment load reduction might be achieved by good management practice in the catchment, although substantially more is likely to be needed to improve Harbour ecological health.
- 69% *E. coli* reduction to meet C band for human contact in the Nukuhou River.
- These are large sediment load reductions, and very large *E. coli* reductions.

Some long-term monitoring sites are below national bottom lines and need to improve, including macroinvertebrate at two sites in pastoral land use areas.

DRP and *E. coli* at the Nukuhou River monitoring site are also in a poor state and need to improve. Work is underway to estimate how much phosphorus is naturally occurring so that reasonable targets can be set.

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.

Nitrogen	Phosphorus	Sediment	*E. coli*

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

Small | Moderate | High

How can we meet the outcomes and targets we set?

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

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

National regulations for freshwater

Current national regulations require:

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

Pending national regulations in 2023 are:

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

Draft water quality management options

This FMU needs a strong focus on sediment and *E. coli* reduction for the health of the Harbour and to improve safety for swimming and shellfish gathering, and also restoration of stream habitat.

Over the last few years some good work has been done in the catchment, including fencing of streams to exclude stock and planting to reduce erosion. Some farmers are further along in this journey than others, and across the FMU as a whole there is opportunity to achieve more through good management practice to protect farms from damage associated with erosion and reduce impacts on rivers and the harbour. Investigations into soft and hard engineering solution options to reduce sediment generation are also underway.

It is likely that national regulations will achieve some of the outcomes sought. However, for sediment and *E. coli*, more stringent management may be required, and the following options are being considered:

- Using Freshwater Farm Plans, require good management practice, set some minimum standards, and seek continual improvement to address rural land use practices that pose a high risk of sediment, nitrogen, *E. coli* and phosphorus loss. Focus on maintaining vegetation cover, planting and stabilising river margins, stock exclusion from water bodies, and potentially pole planting on slip prone areas.
- Requiring no net increases in *E. coli*, nitrogen, phosphorus, or sediment as a result of future land use and practice change (this may require offsetting).
- Requiring removal of stock from steep (>25 degrees), erosion prone land, and planting of native trees, or removal of heavy stock.
- Requiring plantation forestry harvest management plans at the time of afforestation to address sediment loss during and after forest harvesting.
- Potentially taking a fine-scale approach to first identifying the most erosion prone slopes and then actions to avoid disturbance by stock or logging operations.
- Requiring stock exclusion and a potential setback from harbour margins.
- Encouraging stock exclusion from all rivers, streams and drains (through Freshwater Farm Plans) where possible and requiring stock exclusion from large drains (>1 m wide). Maintenance of a thick grass sward on margins and/or planting of one side of drains and canals to provide shade and bring down water temperature. Require temporary stock exclusion from flow paths in the lowlands when wet.
- Encouraging feral animal control in native forest to maintain river ecosystem health and reduce sediment and *E. coli* losses.
- Gathering farm data on stock, feed, fertiliser and other farm and horticulture nutrient inputs, and consider setting a cap on high nutrient inputs.
- Controlling intensive grazing that removes vegetation cover (strip, block or break feeding) and cultivation, including active management of Critical Source Areas (e.g. overland flow paths), in a similar way to national Intensive Winter Grazing Regulations.
- Exploring and encouraging physical technological solutions such as sediment control bunds in appropriate locations.
- Encouraging restoration of in-river habitat, and river and harbour margin habitat, including fish passage.
- Require lined animal effluent storage and set effluent irrigation rate, timing and volume requirements.

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

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

Te nui o te waipapa me te tukunga

Surface water quantity and allocation

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

What are we aiming for?

How much water we take from rivers and streams for people to use will affect how much water is left for native fish 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 it, on the community, economic development and possible land use in the catchment.

How can we meet the outcomes we seek?

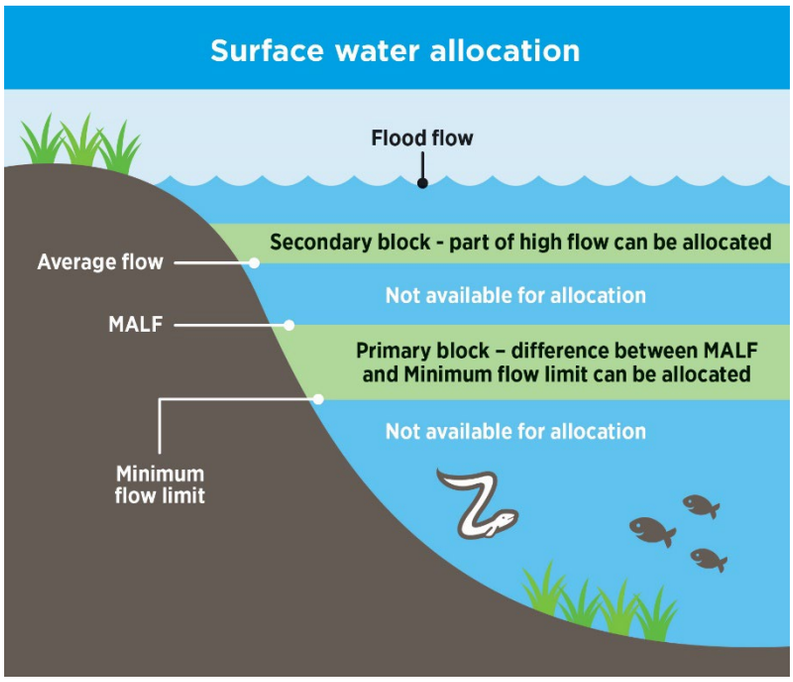
Our main tool for managing water quantity is the setting of minimum flows (limits to achieve the desired level of environmental protection).

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

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

In the Nukuhou River we now have a river specific scientific study to help us understand the likely effects of different water levels on the different fish populations in the river. We are using this information to draft new minimum flow limits for, based on achieving a consistent level of habitat protection for native fish.

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 not allow over allocation. While nobody wants to be told to stop taking water, especially during a drought, there is a trade-off between managing effects on the health of the river or stream (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 rivers and streams, 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?

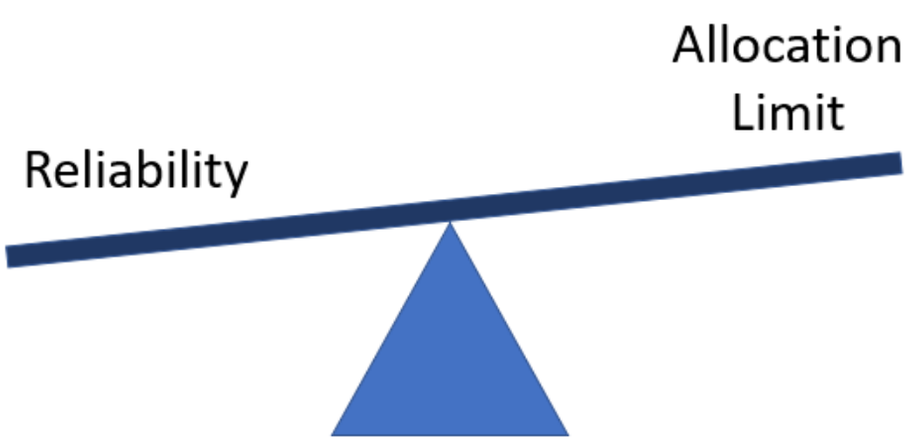
Water use

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 default allocation limit is currently set at 10% of the 1 in 5-year low flow and under this limit is near full allocation.

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

A study of flow patterns in the rivers and streams that are not dominantly spring fed (such as found in the Ōhiwa Harbour 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

With only a single resource consent to take water from this FMU (Nukuhou River) there are no major issues relating to surface water quantity. It's important to ensure allocation and use is efficient. Flow estimates are only available for the Nukuhou River and Wainui Stream, but this is not a problem while demand remains low.

Surface water demand in this FMU is moderate and there's capacity for further allocation if the proposed ecological minimum flow and allocation limit is set. The upper reaches are identified by Fish and Game as important trout fishing or spawning areas.

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 default single allocation limit (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)

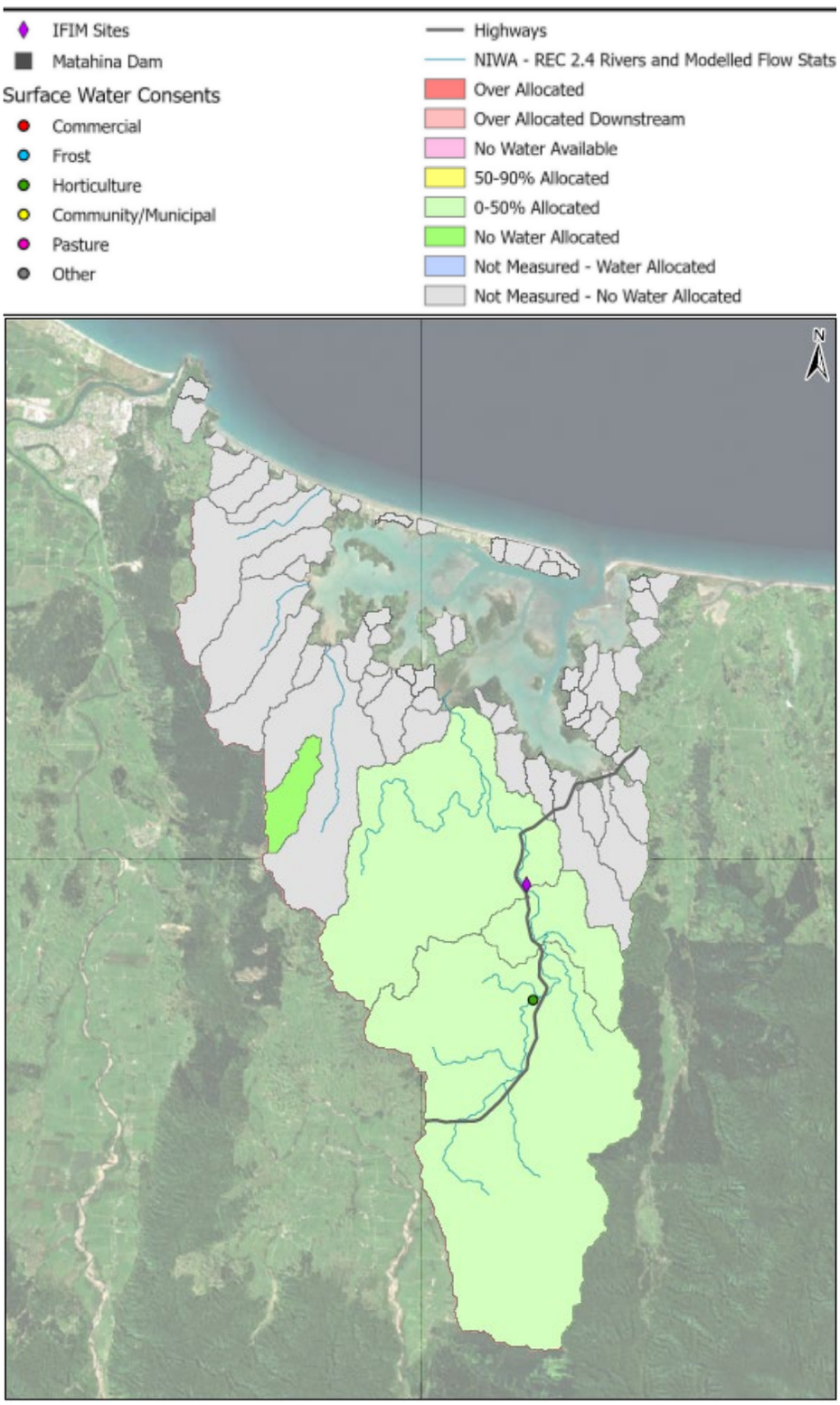
The first set of choices we need to make concerns the level of protection we give to the main fish present in the river. Essentially, we are keen to know what you think of the Habitat Retention Levels in the table above. We could make them more protective, which would mean water takes would have to be 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)

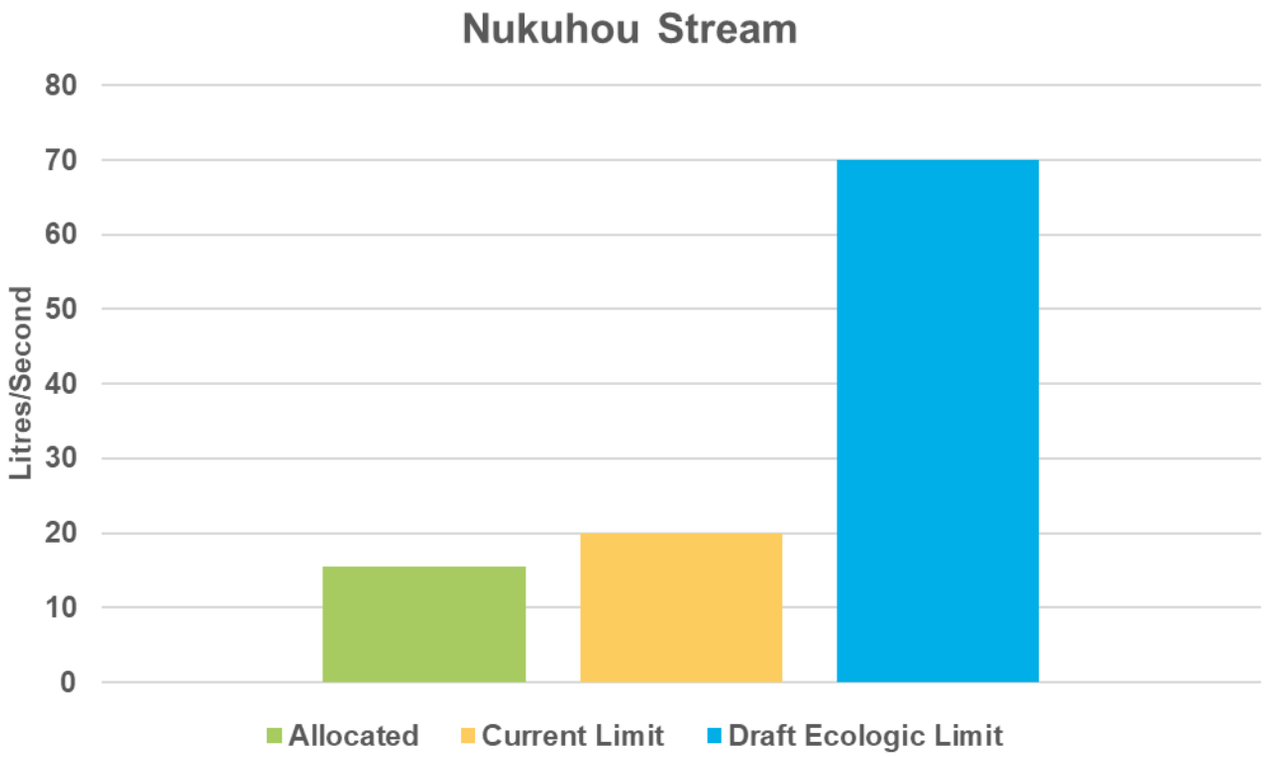
Our next choice concerns how much water to allocate and the effect of this on reliability for users. We propose that the allocation limit should be the difference between the Mean Annual Low Flow (MALF) and the ecological minimum flow (that provides the habitat retention levels noted above. The map on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

Option set 3: Primary and Secondary Block

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



Allocation status based on draft minimum flows, and an allocation limit that is the difference between the Mean Annual Low Flow and 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 gravel, sand, mud and between the crevices in rocks. Groundwater can be taken for irrigation or storage and can usually only be accessed via a bore drilled into the ground. In general, groundwater is more costly to access than surface water, especially if it is difficult to find or extract.

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

Geology in the Ōhiwa FMU is basement rock (called greywacke) and mudstones overlain by thin deposits of marine and alluvial sediments. The highest concentration of bores is along the Ōhope Beach, targeting water in recent dune sand deposits.

Issues

- The generally low level of allocation in this FMU means that groundwater abstraction is likely to be low compared to aquifer recharge.
- Sedimentary basins along the harbour are unlikely to yield significant sources of groundwater. There is an associated saline intrusion risk from large or concentrated takes near the coast.
- There is limited groundwater capacity in inland parts of the FMU.

Policy options

Utilisation. The relatively low level of groundwater use in this FMU leaves potential for increased use if needed. The extent to which this plan highlights availability to potentially stimulate demand is an important policy question. Groundwater allocation policy may not need to be particularly restrictive on takes.

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

Saline intrusion. The risk of saline intrusion is greatest near the coast where consideration needs to be given to possible restrictions and monitoring requirements. With the very small amounts of take in this FMU saline intrusion is likely to be an issue.

Surface water/groundwater balance. In most FMUs it is also important to consider whether to encourage the use of groundwater in preference to surface water. However, in this FMU the use of water is not large so this is less of a concern.

Impact on surface water: Another important question is how to account for a groundwater take's impact on surface water. If a take is going to affect surface water then we should reduce the availability of surface water by the estimated amount of that effect. In this FMU the takes are relatively small and the impacts slight.

Next steps for this FMU will be developing new Groundwater Management Zones within which allocation limits will be set.

New estimates of overall water balance for this FMU, combined with further consideration of management zones are unlikely to significantly change the current situation of relatively low demand and groundwater available for allocation.

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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