

BRIEFING NOTE



To: Freshwater Futures: Rangitāiki Community Group

From: Nicki Green and Andrew Millar, Senior Planners, Water Policy

Date: 5 March 2019

Subject: **Workshop 9: Groundwater Quantity**
20 March 2019, Galatea Hall

1 Meeting Overview

1.1 Purpose

The focus of this workshop is on future groundwater quantity management in Rangitāiki Water Management Area (WMA).

This includes:

- confirming values and objectives
- clarifying issues we need to resolve
- exploring options to address the issues
- potentially forming recommendations.

1.2 Outcomes sought

Group members:

1. Have a common understanding of groundwater systems in Rangitāiki WMA, including what we do and don't know about these.
2. Understand how groundwater is currently allocated.
3. Confirm groundwater values and objectives when managing groundwater and groundwater use.
4. Clarify and agree issues associated with groundwater management in Rangitāiki WMA.
5. Explore options to address the issues together from various perspectives, and give feedback on these.

Council staff will have a clear understanding of the issues of concern for group members and any preferences/feedback about options. This will influence how staff form up discussion documents for the wider community and policy options assessments, (e.g., water allocation limits) for Plan Change 12.

Results of this workshop will be reported to Councillors and the Rangitāiki River Forum.

The meeting agenda is attached and each item is outlined below. For a bit more depth, re-read the **fact sheet** '[Introduction to Groundwater Environmental Level Setting](https://www.boprc.govt.nz/media/796400/2018-03-28-rangitaiki-groundwater-limits_info-sheet.pdf)' (https://www.boprc.govt.nz/media/796400/2018-03-28-rangitaiki-groundwater-limits_info-sheet.pdf) – this was circulated for workshop 7, although the allocation tables have been updated with more recent and correct data.

1.3 **Proposed Plan Change 9: Region-wide Water Quantity**

Proposed Plan Change 9 (PC9) sets region-wide objectives, policies and rules for groundwater management, including setting management zones and allocation limits. PC9 is the subject of Environment Court appeals and therefore may change.

The work we will do in this workshop may lead us towards either confirming that the region-wide provisions are appropriate for Rangitāiki, or that SOME, but not all of the region-wide provisions should be replaced with Rangitāiki specific provisions.

This creates some complexity and sensitivities which we will have to carefully navigate during the workshop. We will not be able to discuss or resolve matters that are subject to Environment Court appeals.

1.4 **Rangitāiki River Forum members**

Following a freshwater workshop with the Rangitāiki River Forum, members of the Forum have been invited to join community group workshops, acknowledging some are already members of the group. The Forum wishes to form its view with the benefit of the information and discussions shared in the group.

2 **Groundwater in Rangitāiki**

2.1 **Geology and groundwater beneath us**

We will spend some time presenting about basic rock/geological layers beneath the Rangitāiki WMA, and the water resources they hold. We'll note some of their properties like unconfined verses confined, connected to rivers and not. We'll also note what we don't know about the groundwater system. We have covered this before, but were rushed, so this will be a recap and chance to ask questions.

Think about:

Take a look at the diagrams below.

Bring any questions you have about them to the workshop.

Aim to feel comfortable enough to explain them to the neighbour over the fence after the workshop because these are foundations for the rest of the discussion.

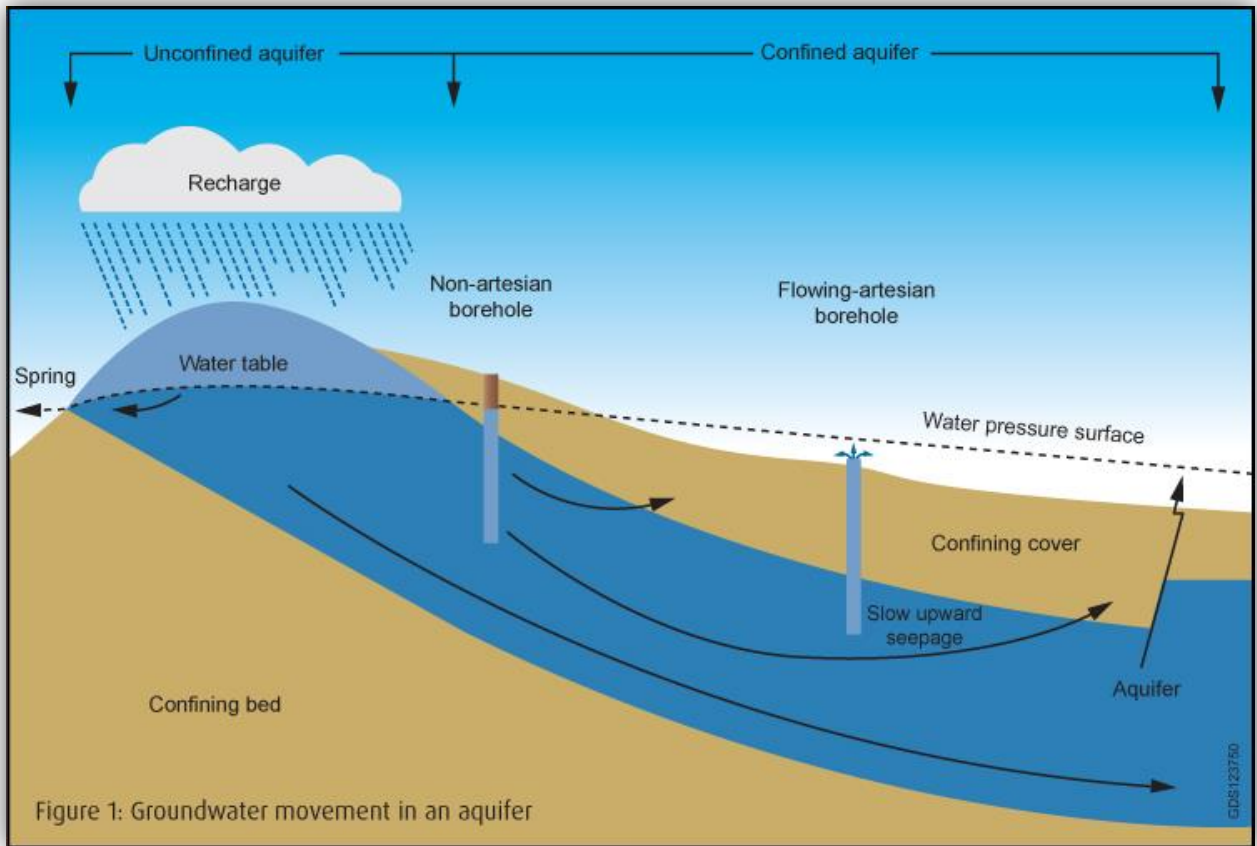


Figure 1 Groundwater movement in an aquifer (confined and unconfined parts of the aquifer are in blue)

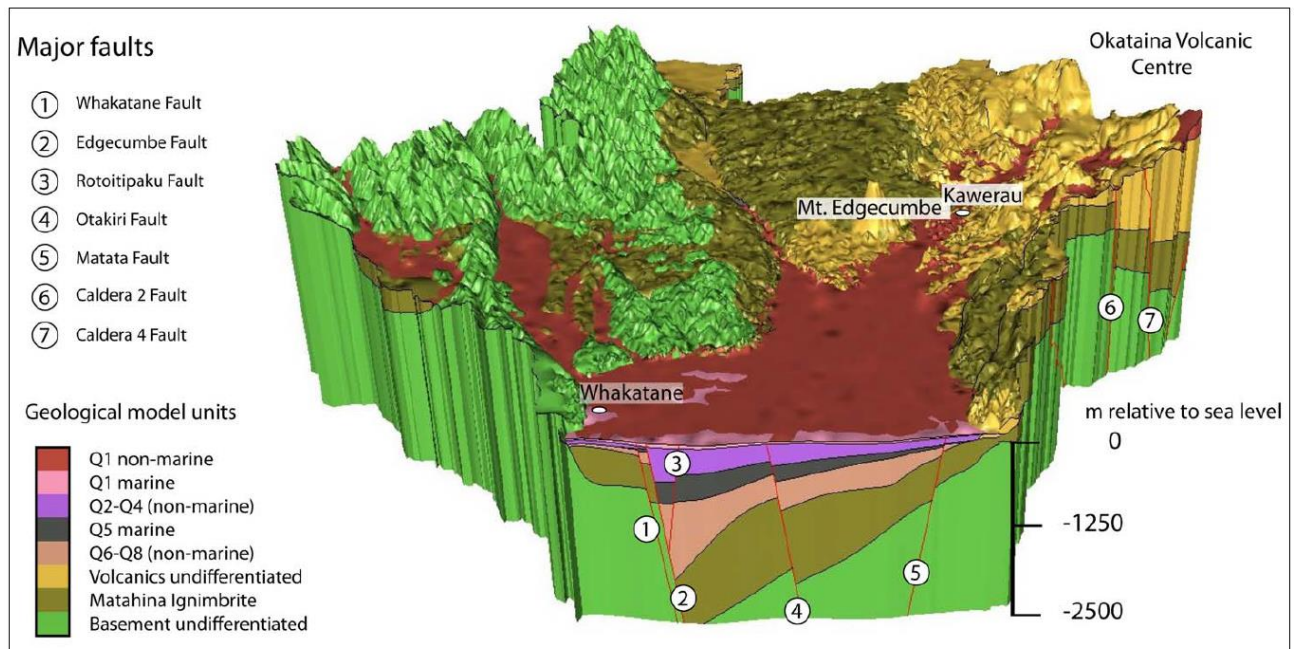


Figure 2 Three dimensional diagram of the Rangitāiki Plains geological units and faults

2.2 How much groundwater is there?

The fact sheet '[Introduction to Groundwater Environmental Level Setting](#)' explains that at the moment (and for the next 5 years or so) we have to rely on a groundwater “mass balance” approach to estimating how much water is in the groundwater system. That is,

we broadly estimate how much water goes in to the ground (rainfall minus run-off and evapotranspiration) and how much comes out (base-flow to streams) to figure out how much is in the ground and *potentially* available for use.

There's plenty we don't know for sure, and we won't know more for several years. We will talk through this with you, because it influences what sort of allocation limits we can set.

3 Values, uses and objectives

3.1 Values and uses of groundwater

Groundwater has many values and uses including:

- providing base-flow to springs, rivers and wetlands;
- providing a water resource for use, e.g., for human and stock drinking water, irrigation, dairy shed wash-down, and other industrial/commercial uses;
- groundwater head/pressure dictates where the salt water/freshwater interface is near the coast and so affects coastal groundwater quality;
- mauri¹.

We will discuss what we do and don't know about these values and uses in Rangitāiki WMA, and implications for groundwater management.

Think about:

Are there other values and uses of groundwater that are particularly important to you that are not included above? Are the values and uses above important to you?

3.2 Objectives

There are objectives in the National Policy Statement for Freshwater Management and in the Regional Policy Statement relating specifically to groundwater quantity – our work in Rangitāiki (Plan Change 12) must give effect to these.

There are also region-wide objectives in Proposed Plan Change 9 that will apply to Rangitāiki WMA, unless superseded by Rangitāiki specific objectives in Plan Change 12.

For simplicity, here is a summary of general **objectives that support values and uses:**

- Use of groundwater does not result in a sustained decline in groundwater levels.
- Use of groundwater does not permanently/unsustainably lower base-flow in rivers, or spring flows or wetlands.
- Groundwater use does not adversely affect groundwater quality, including causing saline intrusion.
- The mauri of groundwater is sustained.
- Groundwater is available for use, subject to the above objectives being achieved (by setting appropriate allocation limits, levels, and consent conditions).

Later in the workshop we may also discuss objectives/principles about *how* water is allocated to users.

Think about:

Do the above objectives seem appropriate to you?

Are there other objectives that are particularly important to you?

¹ Mauri is defined in the RPS: The essential life force, energy or principle that tangata whenua believe exists in all things in the natural world, including people [continues]

4 Allocation of Groundwater

4.1 Current Allocation Limits

Groundwater allocation limits are currently set by Proposed Plan Change 9 and explained in the fact sheet (link provided above).

Groundwater availability and consented allocation for groundwater in management zones in Rangitāiki Water Management Area, can be seen using the BOPRC [Groundwater allocation map tool](https://boprc.maps.arcgis.com/apps/MapSeries/index.html?appid=7a2ff1e0b0454bdb89498f0e019a23dd).

(<https://boprc.maps.arcgis.com/apps/MapSeries/index.html?appid=7a2ff1e0b0454bdb89498f0e019a23dd>)

The tool:

- shows the current allocation limit
- includes maps and information that show how much groundwater is allocated via resource consents for each groundwater management zone (this changes when new consents are granted and existing consents expire or are replaced)
- shows remaining allocation for each management zone.

A table showing current allocation limits, consented allocation and remaining allocation for each groundwater management zone in Rangitāiki Water Management Area is attached.

We will look more closely at where there is and isn't water available at this workshop.

Note that even if groundwater resource is available, we cannot issue a consent to use it if it will mean existing consented users can't fully exercise their consented use. For example, if a proposed groundwater take is very close to an existing one it might have a localised effect on the existing user, or if groundwater is connected to surface water a new groundwater take might affect surface water takes.

4.2 Current and future demand

We need a clear sense of whether (and where) water constraint is a real issue in Rangitāiki WMA now and in the future.

At the end of last year some of you joined a discussion about work being done by Aqualinc Research on freshwater-related opportunities and barriers for economic growth. Aqualinc Research produced a [final report](https://www.boprc.govt.nz/media/796356/fresh-water-constraints-to-economic-development-final-hires.pdf) which is available on our website (<https://www.boprc.govt.nz/media/796356/fresh-water-constraints-to-economic-development-final-hires.pdf>).

A key conclusion is that the foreseeable increase in freshwater demand (mainly from horticulture development) would generally be able to be provided for within current interim freshwater allocation limits across the region, (although there are some localised exceptions). This assumes that all irrigation and frost protection consents are based on reasonable use.

For the Rangitāiki Water Management Area, "future demand" was based on one of the future land use scenarios tested in our catchment model (and discussed at workshop 7).

We will present some of the information for Rangitāiki Water Management Area and discuss what you think.

5 Groundwater Management Issues in Rangitāiki

Based on all of the discussions above, we think you will raise several issues and concerns; we have also identified some.

In this section of the workshop, we will clarify the issues/concerns you have about groundwater quantity management. In the next part of the workshop we will start to look at options to address them.

Some issues are not within our ability to address, e.g., first in first served.

Some big issues we have identified are:

- Limited information about:

- effects of water use on the groundwater resource, springs and wetlands;
- groundwater, surface water interaction ... we assume they are connected.
- Potential for land use change IF water can be made available.
- Potentially available groundwater cannot be allocated above Matahina if connected to surface water.

Think about:

What are the big issues of concern to you?

6 Options to address the issues

We will start to explore options, from the different perspectives of different parties.

These may include to:

- Improve information:
 - collect seasonal groundwater level changes over a number of years (inform model);
 - collect water use data over a number of years to determine actual water use (inform model);
 - Improve spring / wetland mapping and collect flow monitoring data.
- Review allocation limits when computer based groundwater modelling results are available in 3-5 years.
- Increase / change allocation limits now.
- Review existing groundwater take consents – improve allocation efficiency.
- Share water - consider any possible, mutually beneficial solutions for managing the available and allocated groundwater resource.
- Review management zones - Potential to re-distribute the volume of water available for allocation over a wider area in some places.

Think about:

What options would you like us to consider?

We will spend some time considering these from different perspectives

Attachment 1: Groundwater limits and consented allocation for management zones in Rangitāiki Water Management Area (as of 1 February 2019)

Management Zone		Plan Change 9 Allocation Limit (m ³ /year)	Consented Allocation (m ³ /year)	Consented Allocation (% of limit)	Remaining Allocation (m ³ /year)
Upper Mid Rangitāiki	Headwaters	35,320,320	1,460	0	35,318,860
	Kāingaroa South	44,150,400	0	0	44,150,400
	Galatea Plain	8,830,080	5,218,454	59.1	3,611,626
	Minginui	45,254,160	80,520	0.2	45,173,640
	Kāingaroa North	26,490,240	155,855	0.6	26,334,385
	Pokairoa	15,452,640	526,308	3.4	14,926,332
	Waiohau	1,103,760	0	0	1,103,760
	Matahina	16,556,400	0	0	16,556,400
	Ikawhenua	23,178,960	0	0	23,178,960
Lower Rangitāiki	Edgecumbe Catchwater	3,355,430	1,402,914	41.8	1,952,516
	Mangamamako	0	18,250	N/A	-18,250
	Ngakaurua Stream	4,845,506	4,754,449	98.1	91,057
	Nursery Drain	143,489	1,561,668	1,088.4	-1,418,179
	Rangitāiki Dunes	0	116,250	N/A	-116,250
	Reids Central Canal	5,750,590	1,881,966	32.7	3,868,624
	Waikowhewhe	0	702,702	N/A	-702,720