

Catchment Management Strategy Update

The Papanui Catchment Management Strategy is still in its early stages of development.

A focus group of catchment landowners and taiwhenua representatives is providing input and information and helping to steer the development of this strategy by identifying priority outcomes and actions.

A primary aim of the strategy is to guide integrated and non-regulatory programmes to improve water quality. However the group has also identified other outcomes they feel will be important to the catchment community. These include:

- Having a catchment community that is well-informed about water quality issues and associated programmes, as well as their obligations under the Tukituki Plan Change 6.
- Greater awareness of the story of the Papanui and its rich historical and cultural significance.
- Understanding not only the effectiveness, but also the costs and economic impacts, of mitigation strategies to address water quality.
- Greater clarity around the sources and contributions of identified hotspots for nutrient issues.
- Maintaining the catchment's economic wellbeing and ability to prosper through sustainable primary production.

This newsletter will keep you informed as the draft strategy develops. If you would like to learn more about the strategy, contribute to the process, or get involved yourself, we would be keen to hear from you.

From the Focus Group Chairman

Last year I was invited along to a meeting organised by Hawke's Bay Regional Council to discuss the formation of a Papanui landowner focus group.

Apparently this group would be providing input into a catchment management strategy to address water quality issues in the Papanui. I was somewhat cynical at first. Would this be some kind of 'window dressing' exercise that lacked any real outcomes?

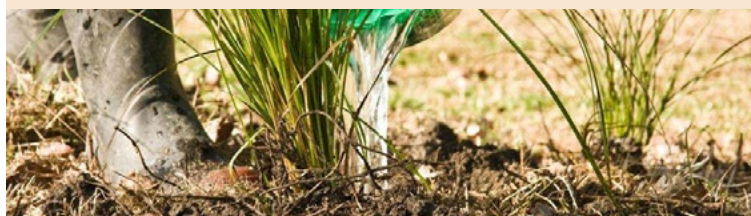
However, experience from around the country has shown that it is better to be 'sitting at the table' when environmental policy is up for discussion. Before I knew it, I was press-ganged into the role of chair for a small group of local landowners, iwi representatives, local district council and Hawke's Bay Regional Council staff.

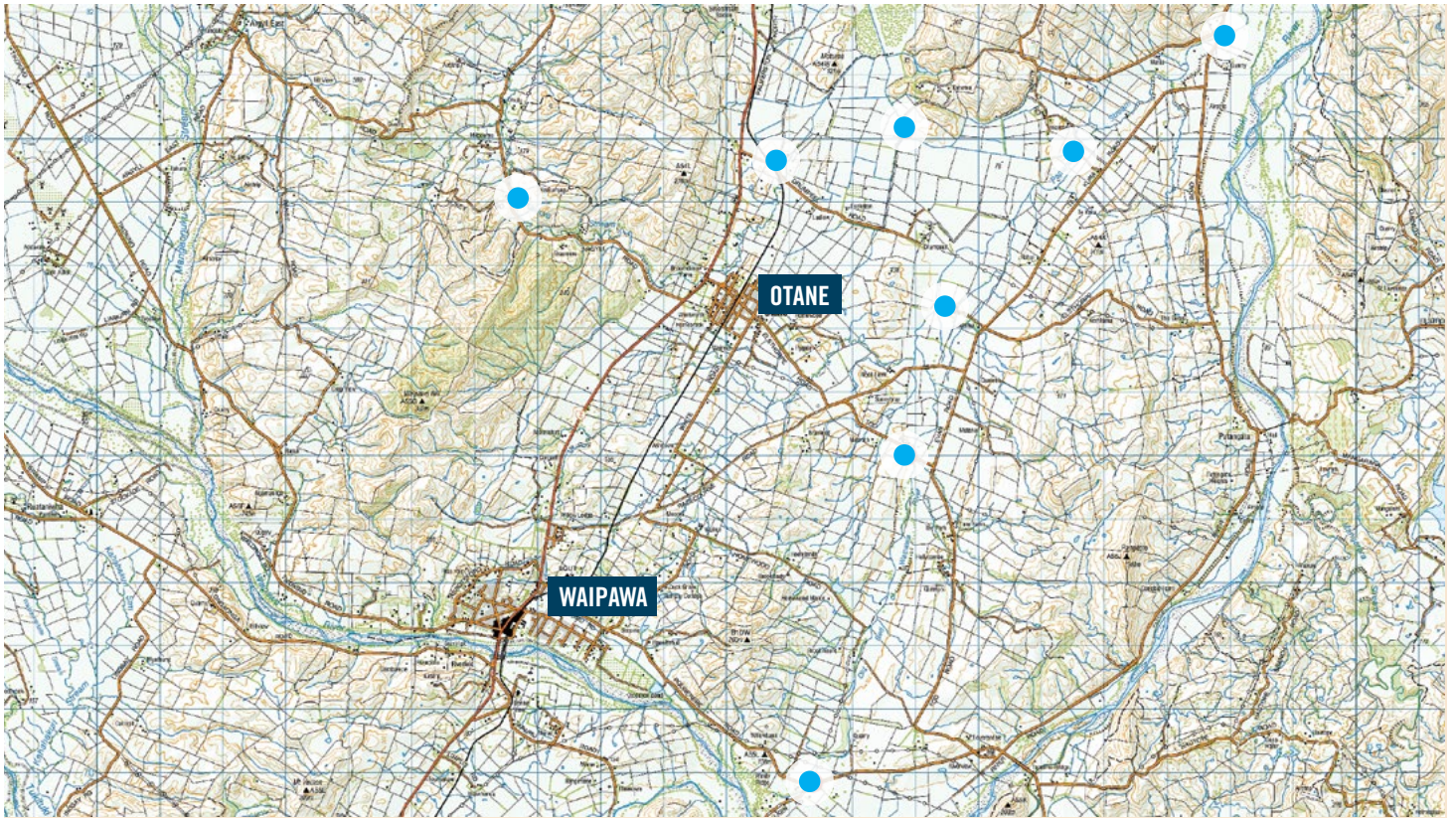
Since our first meeting, we've heard from various experts about water quality in the catchment. What has become increasingly clear is that the current suite of rules and regulations proposed in Plan Change 6 isn't going to solve the problems we have. The high phosphorus concentrations in our waterways result from numerous sources, both rural and urban, across the whole catchment.

So it seems we have two choices: wait till Plan Change 6 is reviewed in 2020 and face whatever new regulations might be imposed upon us, or own these issues ourselves and have a say in how we go about addressing them.

The solutions discussed have ranged from relatively minor changes in management to more costly engineered options or retirements and planting projects. Whatever actions are proposed, we want to make sure that the economic wellbeing of the catchment and our livelihoods as catchment landowners are protected, and that efforts to improve water quality in this catchment are acknowledged and are not only for the benefit of those downstream in the Tukituki to enjoy.

Peter Tod





Water Quality Monitoring: There's Something in the Water...

Surface water quality monitoring sites in the Papanui Catchment

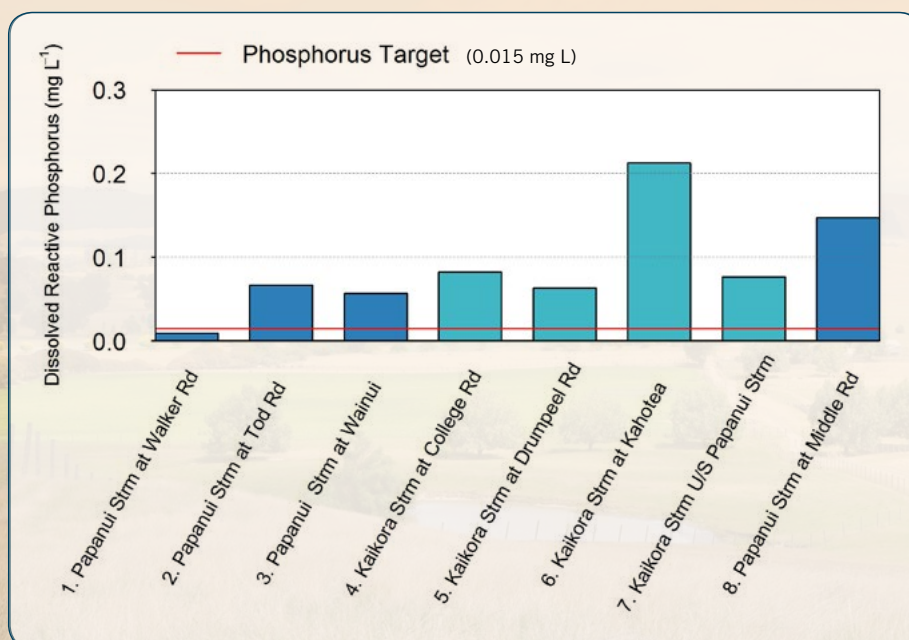
Over the last twelve months, HBRC's water quality team has undertaken an extensive surface water quality monitoring programme in the Papanui.

The team has gauged 32 sites on the Papanui Stream and its tributaries and sampled these on 7 different occasions under different flow conditions. Our aim is to determine the levels of phosphorus, nitrogen and other water quality indicators at different sites.

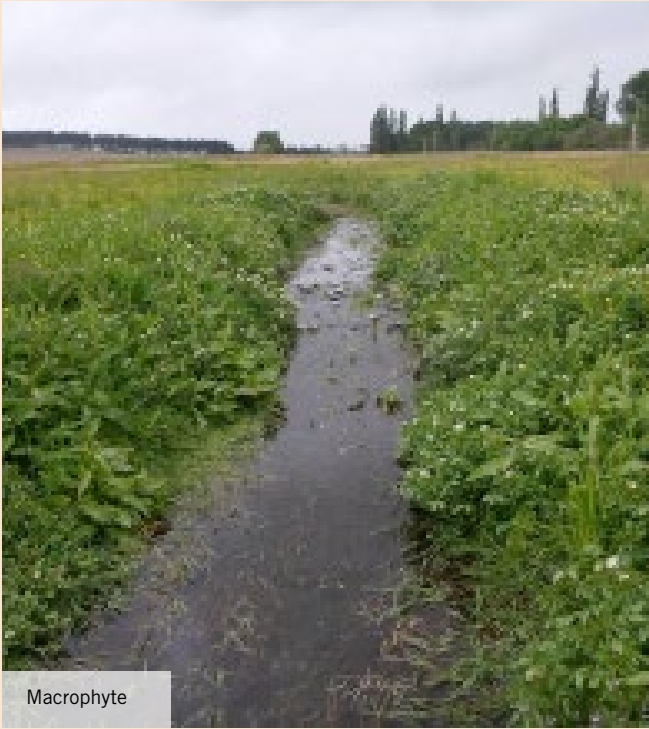
We are particularly interested in phosphorus concentrations in the Papanui, as high levels are known to contribute to poor water quality and excessive macrophyte growth in this catchment and downstream in the Tukituki River.

Some results indicate complex relationships and anomalies that will require analysis. However, in general, they show that there is no single 'smoking gun' within the catchment in terms of phosphorus generation. Instead they point to multiple sources and processes of phosphorus mobilisation. This confirms the need for a shared and integrated approach to managing phosphorus losses from land.

Having said this, there do appear to be areas within the catchment contributing significantly greater amounts of phosphorus on a per-hectare basis. The next stage in our catchment characterisation programme will be to determine why this is and what can be done to reduce these levels.



Levels of dissolved reactive phosphorus at sampling locations on the Papanui and Kaikoura Streams



Macrophyte

Macrophyte Growth in the Papanui

Have you ever seen the Papanui Stream in summer? No? Neither has anyone else!

Between October and May much of the Papanui Stream channel is shrouded in a dense mass of macrophyte growth.

Macrophytes refer to a broad group of aquatic plants that grow below, floating on or growing through the water surface. Over summer, macrophyte growth explodes in the Papanui due to a combination of warm temperatures, sunlight and nutrient rich, low stream flows.

Aquatic macrophytes are a critical component of healthy ecosystems. They oxygenate water, recycle nutrients and provide habitat for fish and other invertebrates. However, excessive macrophyte growth is problematic, obstructing stream flows, damaging flood gates and clogging up water intakes and filters.

While these plants do help to strip nutrients from water, unless harvested they are simply storing nutrients for subsequent release when the plants die back annually.

Like all vascular plants, macrophytes release oxygen during the day through photosynthesis, but then absorb dissolved oxygen from the water column in the evening through respiration. Excessive macrophyte volumes in the Papanui create anoxic conditions that affect stream ecology and also release phosphate trapped in bed sediments.

Shading and cooling stream flows is the most effective way to control excessive macrophyte growth. Of course, not all stream margins will be suitable due to flooding risks and management issues. One of the aims of our catchment programme is to identify areas where riparian planting to control macrophyte growth will be most effective.

Stock Exclusion: A Key Priority

Regulatory provisions around excluding of stock other than sheep from waterways do not take effect until May 2020. This means that the single most effective tool for improving water quality could potentially be five years away.

Our catchment focus group have identified fast tracking cattle exclusion from major waterways as a key priority and want to encourage landowners to exclude cattle sooner. With this in mind, HBRC is exploring a couple of options that would make improving riparian areas easier for landowners.

The process of identifying priority sites is underway and we plan to start contacting landowners once details of the programme are finalised.

Well, Well, Well...

Groundwater Monitoring Update

You may have noticed drilling equipment operating in the area over the last few months. Oil has not been discovered! HBRC's groundwater science team has established six new monitoring bores to better understand the groundwater system in the Papanui Catchment. They will form part of a programme to investigate:

- whether surface water quality is being influenced by groundwater coming in from outside the catchment
- the age and residence time of groundwater
- the speed and direction of groundwater flow
- possible interactions between ground and surface water quality.

Monthly samples will be taken and analysed. Groundwater investigations may also use isotope analysis and chemistry tracer techniques to assess the age of groundwater and recharge sources.



Members of the Taiwhenua and Papanui landowners hosting HBRC councillors and staff at Tapairu Marae.



HBRC freshwater ecologist Andy Hicks demonstrates electric fishing, a technique used to determine the presence and populations of fish species in streams.



What is LUC?

The Board of Inquiry has introduced a Land Use Capability (LUC) nitrogen cap to manage in-stream nitrogen levels.

LUC refers to the capability of land for production. Proponents consider it a fairer approach to the allocation of nitrogen leaching allowances, as it takes into account the potential capability, and therefore value, of production land.

The LUC system is essentially an 8-class ranking of land. LUC 1 is considered to have the least limitations to production so is given higher nitrogen allocation. LUC 8 has the greatest limitations to production so has the lowest nitrogen allocation. Most properties will contain several different LUC units.

Regional LUC mapping was carried out in Hawke's Bay during the 1970s and 1980s. An LUC assessment considers factors such as soil, slope, wetness and climate limitations.

Plan Change 6 update

The Environmental Protection Agency Board of Inquiry released their final decision on Plan Change 6 on 26 June. This followed appeals from Hawke's Bay Regional Council and other submitters on a draft decision released two months earlier. The resulting plan change has retained much of what was originally proposed by HBRC. However the EPA has introduced some significant changes that will affect all properties above 10ha (and intensive properties above 4ha) in the Tukituki catchment. These include:

- A greater focus on nitrogen management, including the introduction of a Land Use Capability (LUC) based nitrogen leaching limit.
- New requirements for farm environment and nutrient management plans.

At the time of printing, the Plan Change is still under appeal. Appeals by Fish & Game, Forest & Bird and the Environmental Defence Society were heard in the High Court in Wellington starting on 10 November. A decision is expected to be announced by the end of February.

If you have any questions about Plan Change 6, including how the Plan Change is likely to affect you, contact your local land management advisors - Warwick Hesketh and Kate McKinnon.

Thinking of planting your retired waterways?

After a successful trial this year, HBRC will run their 'riparian plants at cost' programme again next winter. A selection of native plants will be available, with free planning and planting advice, for landowners undertaking a riparian programme.

This works out at between \$2 - \$3 for a locally-sourced, PB3 quality seedling. Contact Kate or Warwick on **06 857 8219**.

"Shading waterways with suitable riparian planting would go a long way toward addressing nutrient issues and improving ecological health in the Papanui Stream and its tributaries"

Dr Adam Uytendaal, HBRC Water Quality scientist.

This is a newsletter for landowners who own 4 or more hectares in the Papanui sub-catchment and are therefore affected by specific rules within the Tukituki Catchment Plan Change 6. If you know of anyone who is not getting this newsletter but who should be, please let us know.

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