TUKIPO
sub-catchment

March 2016

HAWKE'S BAY
REGIONAL COUNCIL

Land Management

TUKIPO SUB-CATCHMENT

The Tukipo sub-catchment is a priority area. Your support and action will help address water quality issues in your catchment and further down the Tukituki River.

If you have 4 or more hectares, rules in plan change 6 for Tukituki catchment apply to you. However doing the bare minimum to meet rule requirements will not be enough to improve the health of this catchment.

Tukipo sub-catchment is one of 17 in the Tukituki area, covering 22,000 hectares. There are 114 properties over four hectares in size, mainly in sheep and beef, dairy and deer operations. Tukipo along with four other sub-catchments have unacceptably high nutrient levels. They will be a focus of work for HBRC in the next few years.

Even without this Plan Change, we need to improve how we use land to improve freshwater. We need to find a way to make a living from land sustainably while improving the quality of our streams, rivers and wetlands for future generations.

BACKGROUND

Ashley Clinton/Makaretu is the main settlement area of Tukipo catchment, with one primary school: Sherwood School.

The Ruataniwha plains was originally forested with Mataī, Totara, Rimu and Kahikatea (dominant in moist sites). Much of the forests were devastated by severe gales 700 years ago, with further clearances from European settlers occurring later. Areas closer to the ranges above State Highway 50 were cleared later than the areas below State Highway 50.

Human activity has significantly altered the landscape in this catchment. Combined human activity can also significantly improve water quality in the future.

FAST FACTS: TUKIPO

Total area: 22,000 hectares

Average rainfall: 900mm (east catchment) to 2000mm (in the ranges)

Soil types: Range from free draining, stony, alluvial soils, to ash or loess formed soils with a pan, and slow infiltration and drainage.

Length of waterways: 216km

Stock excluded waterways: 57%

QEII covenants: 5 **DOC reserves:** 8

Contaminant issues: High phosphorus (P) and nitrogen (N) levels

The thing is..

Tukipo has high levels of nitrogen and phosphorus in-stream.

TUKITUKI PLAN CHANGE 6

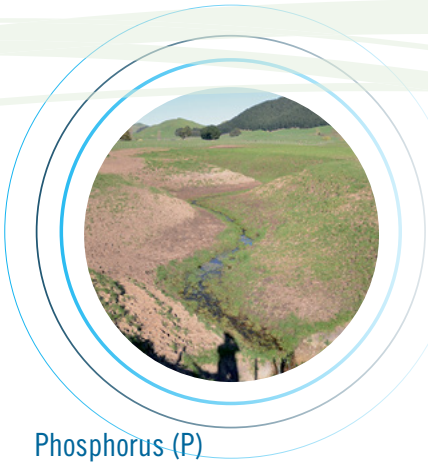
is HBRC's first catchment-specific plan change, required by the National Policy Statement for Freshwater Management 2011.

CURRENT ISSUES

Simply put, what comes from the land ends up in the water and affects water quality. Land managers hold the keys to improving water quality. Tukipo has high concentrations of nitrogen and records high concentrations of phosphorus at the SH50 monitoring site.

SOME GOOD NEWS

Tukipo has well oxygenated water and good life supporting capacity. This results in a healthy community of bugs (invertebrates) to feed other in-stream life. Some good work has already been done on local farms to look after water quality. Extending this work over a wider area would make a big difference.



Phosphorus (P)

Phosphorus levels in the Tukipo are moderate to high across the sites monitored. The SH50 site has high P levels. P concentrations reduce at the downstream monitoring site, due to dilution from in-flows.

Critical Source Areas

Most of the phosphorus losses (around 80%) come from a small part (20%) of the overall sub-catchment landscape. These areas generate significant phosphorus (P) loss and include land with high soil P levels, erosion, stock yards, tracks, races and intensively grazed areas. P losses can be reduced through improved management techniques. Anywhere with exposed soil is likely to be a 'critical source area'. Identifying critical source areas and ways to reduce P loss is a core component of your Farm Environmental Management Plan (FEMP).

Nitrogen (N)

Nitrogen is more than 50% above the limit for dissolved inorganic nitrogen (DIN). N levels in Tukipo are the 5th highest of the Tukituki sub-catchments. Nitrogen is typically more difficult to reduce than phosphorus, because it literally 'leaks' through the landscape. For more intensive grazing systems, urine patches are usually the major source. Winter grazing practices can be a major source of nitrogen loss and should be carefully managed.

Sediment

The greatest threats to stream health are increased inputs of fine sediment and poor riparian management. This sub-catchment has moderate levels of stream bed sedimentation. Sediment fills in the nooks and crannies where fish and bugs (invertebrates) live. Studies have shown that adding fine sediment to a small stream resulted in the loss of 90% of its fish, and removing riparian habitat resulted in 75% less inanga (whitebait).

Eel photo: Alton Perrie

Stock Access

Only 57% of the waterways here exclude stock. Stock exclusion will contribute to better stream health. Protection can be improved by widening buffer areas near streams and planting. This will also reduce phosphorus and bacteria levels. Many small streams in the Tukituki get too hot in the summer to support in-stream life. Providing shade can reduce water temperature, decrease nuisance plant growth and increase the amount of oxygen in the stream.

Bacteria

E. coli in water is an indicator of bacteria from excrement. Levels of E. coli in Tukipo are approaching the limit in the plan.

So what are the effects?

The combined effects of high in-stream nutrient concentrations, long low-flow periods in the summer months and high temperatures, lead to excessive growth of algae and slime. This reduces water quality in the Tukituki.

Stream catchments that begin on the Ruataniwha Plains have lower rainfall and lower flows than stream and river catchments originating in the Ruahine Ranges.
This limits the dilution of nutrients and contaminants and strongly influences nutrient concentrations in-stream.

WHAT ELSE IS BEING DONE?

Water Quality Monitoring

HBRC's science team monitors nutrient levels and trends across the Tukituki catchment. There are two monitoring sites in the Tukipo. Water quality samples are taken and flows have been gauged each month for 4 years.

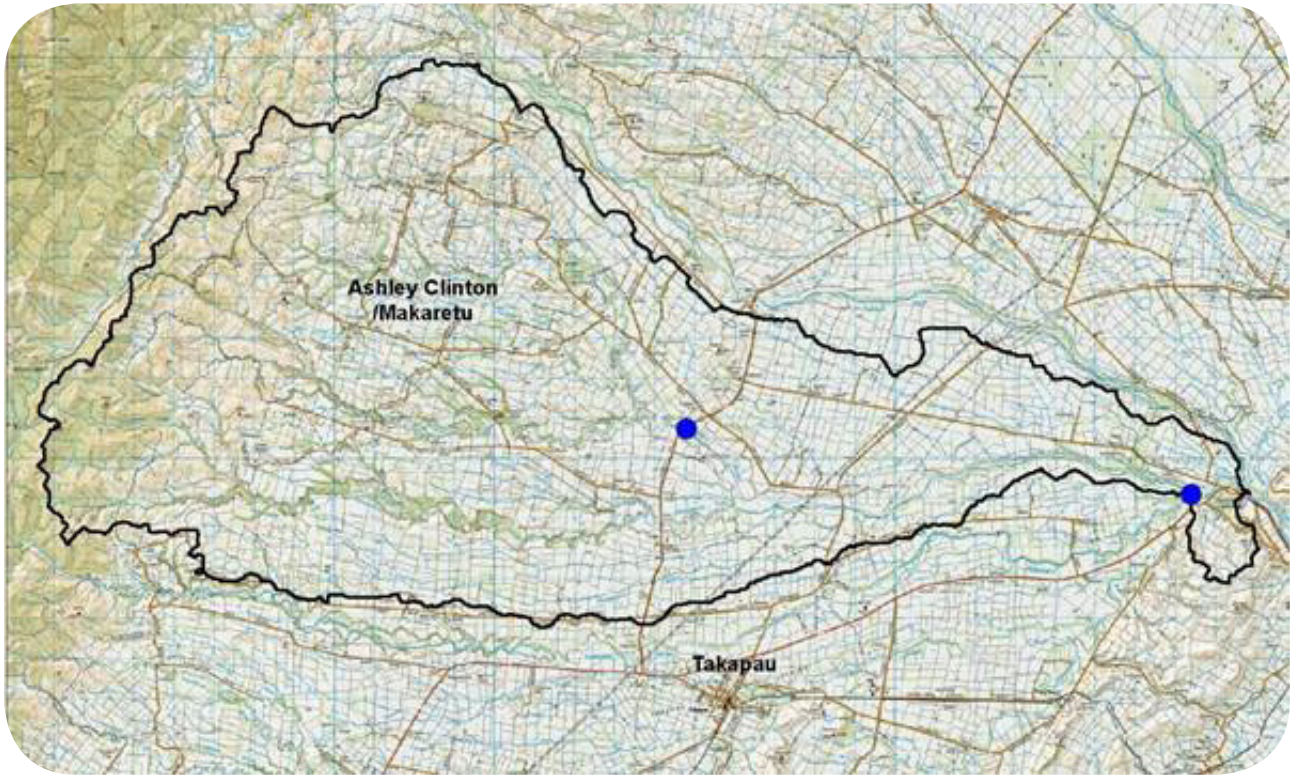
Water Quality Monitoring Sites

These monitoring sites in the Tukipo help HBRC scientists to monitor trends, and compare nutrient levels to targets, and to the rest of the Tukituki sub-catchments.

Implementing Plan Change 6

Stock exclusion requirements do not take effect until 2020, but are expected to make a significant impact to reduce in-stream phosphorus levels in the Tukituki River.

Plan Change 6 will require landowners or farm managers with four hectares or more to have a Farm Environmental Management Plan or FEMP by 2018. Making a start, planning and taking action early, and doing a manageable bit at a time, will reduce stress when these actions become requirements.



RECOGNITION

The first priority catchment to begin focused work in the Tukituki was Papanui. The Papanui Catchment Focus Group was formed in 2014 with the help of HBRC staff. This group includes landowners and taiwhenua representatives who worked together to develop the Papanui Catchment Management Strategy.

The group's vision is to protect the economic sustainability of the catchment, while contributing to improved water quality - locally and in the Tukituki River.

LET'S GET STARTED

HBRC started a riparian planting programme in 2014. Due to its success it will be available again during winter. A selection of native plants are available, with free planning and planting advice for landowners undertaking a riparian planting scheme.
The eco-sourced plants are $2 to $3, PB3 good quality seedlings.
Contact Maddy Clark (below centre) on **06 833 8067** to get your order in.

Contact HBRC Land Management Advisors on **0800 108 838** for help to clarify any of the issues raised in this document or help to design some practical solutions on farm.

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