Ruamāhanga Whaitua Committee

TO All attendees of the Ruamāhanga Whaitua Committee small stream allocation fieldtrip and workshop, 27 February 2017

FROM Mike Thompson

DATE 22 February 2017

FOR YOUR INFORMATION

How much water should be allocated from small streams in the Ruamāhanga catchment?

One of the tasks of the Ruamāhanga Whaitua Committee (RWC) is to make recommendations in the Whaitua Implementation Programme (WIP) on the level of allocation from small streams in the catchment. Compared to larger rivers, small streams in the Ruamāhanga whaitua tend to have high levels of 'on paper' over allocation, though the implications of this are unclear. The RWC agreed in November 2016 that a workshop with experts could be a useful way to look into small stream allocation issues and options. A Committee workshop is planned for Monday 27 February 2017 to specifically explore this task. This memo provides background information for attendees of the workshop.

Objective of the workshop and outcomes sought

Ultimately, the RWC need to tackle two key questions:

- Are existing levels of allocation from small streams sustainable?
- If not, what would more satisfactory levels of allocation be?

With these questions in mind, developing WIP recommendations about allocation limits for small streams will be a two stage process; the first stage involves the RWC developing a deeper understanding of the streams in question and the science available to help with limit setting. The second stage will bring that understanding together with the whaitua community's values in order to deliver draft and then final recommendations on the Committee's preferred allocation approach for small streams. The workshop on 27 February relates to the first stage only.

The expected outcomes from the workshop are that the RWC will:

- Reach a common conceptual understanding about how small streams are impacted by low flows and abstractions
- Be informed about the science relevant to setting limits in small streams
- Understand, in a general sense, what options are available for managing allocation levels and the expected benefits associated with different options

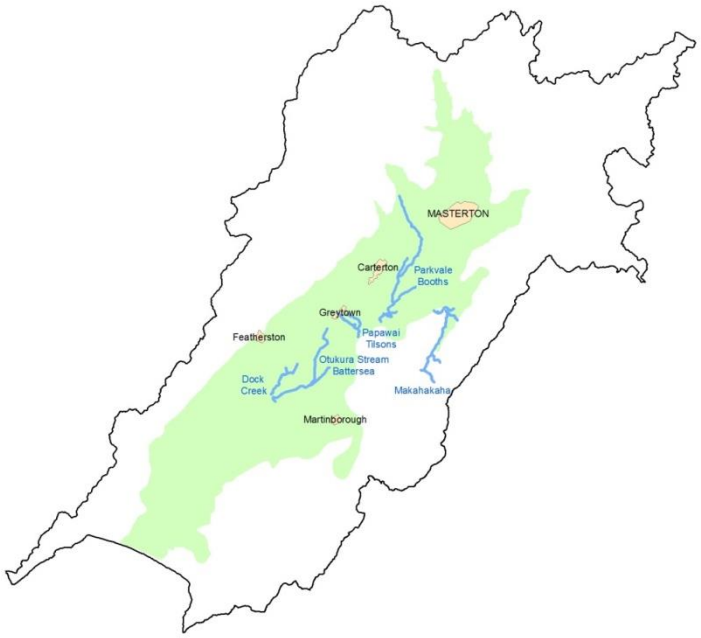
Current allocation in small streams

Currently, the GWRC Proposed Natural Resources Plan (PNRP) sets default interim limits for small streams of whichever is the greatest of:

- 30% of natural 7day mean annual low flow (MALF), or
- the existing level of allocation.

The choice of 30% of MALF is not based on any particular Ruamāhanga catchment-specific science, but rather on the rule of thumb for small waterways that is advocated by the Proposed National Environmental Standard for Ecological Flows.[1]

The current level of allocation from the most heavily used small streams in the Ruamāhanga catchment is substantially more than 30% of MALF (see table below).



Small stream	Total allocation# (L/s)	Estimated MALF (L/s)	Allocation as % of MALF (30% is considered 'full allocation' according to interim limits for small streams)
Otukura/Battersea	165	100	165%
Papawai Stream	159*	210	105%*
Tilsons Creek	114	150	75%
Parkvale Stream	160	140	115%
Booths Creek	109	80	135%
Makahakaha Stream	30	90	35%
Stonestead/Dock	335	500	65%

Maximum consented abstraction, including estimated depletion associated with connected groundwater abstractions

* 219 L/s is allocated but groundwater take (up to 60 L/s) cannot operate at the same time as the surface water take, so actual maximum rate of abstraction is 159 L/s

[1] See http://www.mfe.govt.nz/fresh-water/national-environmental-standards/ecological-flows-proposed-nes

Workshop format

The workshop will involve site visits to the Parkvale and Papawai streams, followed by group work at the South Wairarapa Working Men's Club in Greytown. In addition to Committee members and GWRC staff, freshwater experts from NIWA and Cawthron will attend, as well as a couple of members of the Ruamāhanga kaitiaki.

The following list of questions could serve as a structure for discussions to help achieve the key outcomes for the day:

- What happens to small streams as flows reduce during summer stress periods?
- What is the current best science for setting allocation limits in small streams? Can any principles of this science be reasonably applied to streams in the Ruamāhanga without catchment-specific investigations?
- Bearing in mind the protection afforded by minimum flows, what magnitude of changes in rates of abstraction are likely to result in meaningful changes to stream health?
- To improve overall health in these largely agricultural streams, how important is reducing rates of abstraction relative to other management options such as riparian planting/shade, pest management, sediment control etc?
- Other than reducing the net rate of abstraction, are there other ways of managing abstractions that might reduce impacts?
- What further investigation or analysis, if any, should be prioritised (beyond the RWC process) to allow robust/defensible limits for small streams to be developed?

Background for site visits

	Papawai Stream	Parkvale Stream
General characteristics	Groundwater spring-fed, macrophyte dominated, silty bed. Low flow variability, limited flushing flows. Generally lacking riparian planting, bank protection or shade.	Arises in foothills of Tararua Range, cobbly/gravel bed in upper catchment, sand to silt in lower catchment. Generally lacking riparian planting, bank protection and shade. Higher flow variability than Papawai. Flow regime complicated by cross connections with Taratahi Water Race.
Predominant land uses	Dairy farming, pastoral farming, cropping, large orchard, low intensity residential	Dry stock grazing in upper catchment, dairy farming in lower catchment, low intensity (fringe Carterton) residential
Known important values **[not an exhaustive or formal list]**	Long fin tuna (eel) population Mahinga kai, especially koura, kakahi and watercress Recreation (swimming hole at marae) Trout spawning Irrigation and stock water supply	Mahinga kai, especially tuna and watercress harvesting Trout (spawning) Irrigation and stock water supply
General summary of stream health	Low fish diversity (although localised 'hotspots' of higher diversity) Occasionally high (but not lethal) water temperatures, i.e. up to 24 degrees. Excessive accumulation of fine sediments on stream bed Dominance of macrophytes (reduce habitat and dissolved oxygen) Receives treated wastewater from Greytown in lower reaches	Very high water temperatures (up to 30 degrees) and dissolved oxygen spikes occur in lower catchment. Heavily channelised, very little shade or under-bank refuge. Lower catchment ranks in the bottom 20% (i.e. poorest) of GWRC monitoring sites for water quality. But no identified trends of further deterioration. Algae and macrophyte blooms. Lower catchment also ranked 'Poor' for periphyton biomass. Lowes Bush reserve in the upper catchment in good health across range of quality and ecology indicators.
Estimated 7d MALF	210 L/s	140 L/s
Number of water abstractions	5 Although they cannot all operate simultaneously	13
Maximum consented abstraction rate	159 L/s	160 L/s

Minimum flow ("hands off" flow)	160 L/s (75% of 7dMALF) Set to protect long fin eel habitat and maintain dissolved oxygen levels above guidelines Stepdowns in abstraction also required at flows above the minimum flow.	100 L/s (71% of 7dMALF) Largely arbitrary Stepdowns in abstraction also required at flows above the minimum flow.
Current reliability of supply	Days per year cease take: 51 (average) 110 (maximum, 2007)	Days per year cease take: 43 (average) 139 (maximum, 2002)
General comment		Maintaining hydraulic connectivity to Lowes Bush is a critical factor