



Issue 10 – Meeting 29

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We're Working on Management Options

The TANK Group has been working with the science team modellers to understand how the aquifer and surface water systems interact, and see how water abstraction affects ground water levels and the flows in connected rivers and springs.

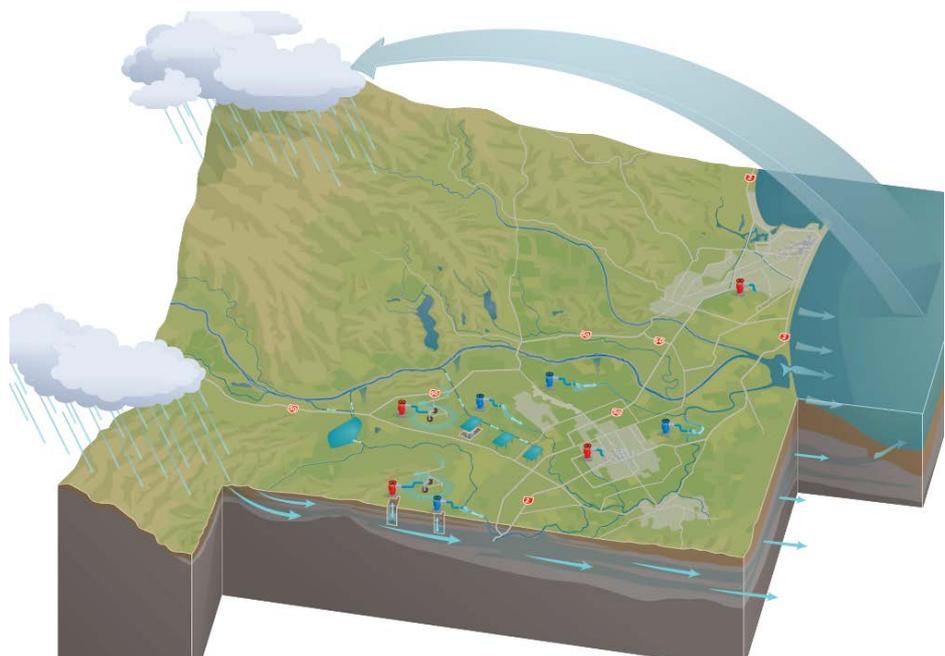
The Group learnt previously that the traditional approach - of restricting or banning ground water takes that deplete surfacewater – to manage spring flows would:

- not significantly change river and spring flows
- take 30 to 150 days to make any sort of difference in flows, and
- require every single water take (including the municipal supplies) to comply make that difference.

The group has been exploring other ways of maintaining river and spring flows. It has yet to hear whether a flow augmentation scheme to hold the level of all lowland streams is feasible and will hear more about aquifer recharge and a possible wetland/ recharge system. The other management option being explored is the use of water storage to manage the effect of the groundwater takes in the plains. This option is also being tested to see if it can manage the impacts of surface water takes on spring and river flows.

TANK in Pictures

We have a new illustration to help keep in mind how the Heretaunga Plains aquifer system works, and how interconnected it is – contact [Drew](#) if you would like a copy of the imagery.



Rivers and Rain

GNS Science's Water Dating Lab scientist Dr Uwe Morgenstern explained how they work out the age and origin of underground water.

The large aquifer system under the Heretaunga Plains gets much of its water from rain in the south and rivers in the headwaters. Water can take a number of different pathways through the system and can travel both over long timeframes and relatively quickly.

We can measure the source and age of the water by using several techniques:

- water has different chemical properties, depending on whether it's ice, liquid or a gas (suspended in the atmosphere).
- groundwater can contain different concentrations of air depending on how much contact it has with aerated shallow parts of the aquifer
- it can have varying levels of other trace elements depending on geology and location
- levels of specific tracer elements like tritium and some greenhouse gases.

Uwe's work also looked at the different modelling tools and techniques used to predict the age of water. This technology is improving over time and new models for predicting how water mixes in the Heretaunga Plains have been developed.

The most recent investigation by GNS has shown that there is more young water in the aquifer that supplies some of the Hasting municipal water supply than was previously thought. However, the combination of new techniques for aging water and new information about hydrogeology and transmissivity has led to groundwater experts concluding that there is no evidence either for or against this young water in the aquifer being **new** water. The councils are carrying out more detailed surveying to account for seasonal and 'large rainfall event' effects on water pathways and age.

Implications relative to drinking water are that assessing risks to drinking water quality is more complex and a higher priority than previously thought.

Water Storage

TANK Group member Mike Glazebrook and HBRC's Jeff Smith explained what 'offline' farm storage – located away from waterways – might look like based on the possible expansion of Lake Te Tua on Mike's Maraekakaho property. Storage is one potential water management option to offset localised low-flow bans that occur for weeks (not months) during summer.

Offline farm dams were described as being modest in size and scale, compared to proposals such as the Ruataniwha Scheme. They could be built progressively and, at the right scale, store water during winter or at high-flow periods to help keep rivers at a natural flow level. The addition of riparian wetlands and habitat management was also discussed.

The subsequent discussion covered a number of issues including potential costs and funding, water mixing/ quality, and the potential for flushing flows. The group concluded that further information about the water demand in relation to their preferred flow management regime would be needed in order to make any decision.

For Example: Lake Te Tua

Elevated by an extra 13 metres in height, the current lake could source winter/ high-flow water from Ngaruroro River for release back into the Ngaruroro during low flow. This would benefit adjacent irrigators, the Bridge Pa community and Karamū Stream. It would still operate as a gravity-fed system.



Options for Water Allocation

Mary-Anne Baker likened the development of the water allocation regime for TANK catchments to a 3-legged stool. The environment, allocation and security of supply are interconnected and decisions made for each of these elements will affect the others.

Very soon, the TANK Group will need to weigh the options they arrive at against the range of values already agreed to.

Working Group Updates

Economic Assessment Working Group have been looking at good agricultural practices and Farm Environment Management Plans, the economic modelling based on agreed model farms and have started outthink about nutrient management challenges. . The Group asked if tourism was included in economic assessment. A social impact assessment (including cultural elements) is yet to be carried out and work was underway to select a suitable consultant

Engagement Working Group priority for future external speakers includes a focus on Farm Plans-GAP, the Horticulture Industry nutrient footprint, Soil health and organic methods, and Security of Supply Please notify [Drew Broadley](#) if you have a speaker in mind for any of these topics.

JUNE: 1-page TANK Talk in Napier-Hastings Mail: due by end June, reference in Tihei Kahungunu/ Wairoa Star on 26 June, and a TANK-focussed stand at the National Hort Field Day event on 29 June.

Stormwater Working Group has a lot happening behind the scenes. Presentations will shortly come from both Napier and Hastings councils at the next TANK Group meeting.

Wetland/ Lake Working Group has no update, and still awaiting Environment Court resolution of an appeal on PC5.

Mana Whenua Working Group gave feedback on the draft Plan Change template. They will meet before the next TANK Group meeting to have Issues/ Objectives sorted for the Group to review. They are keen for the TANK Group to discuss actions for other waterways, in addition to Ngaruroro.

Next Meeting

The TANK Group next meet on 27 July, with a focus on:

- Clive River management options
- More groundwater modelling
- a TANK Plan Change skeleton/framework
- Stormwater management - with presentations from both Napier and Hastings Councils
- Nutrient management

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