





**1. Ahuriri Estuary**

HBRC Scientist Anna Madarasz-Smith gave an overview of the current state and challenges for Ahuriri Estuary.

The water of Ahuriri Estuary is in an enriched (trophic) state. Why? Too much sediment, contaminants from land use, pathogens (bad stuff), a degraded habitat for marine life and birds. But water quality for swimming in [Pandora Pond](#) is suitable for swimming 97% of the time.



Recognition of the Ahuriri Estuary as a site of ecological, cultural and recreational significance.



Concern about sediment, nutrient, bacteria and contaminant inputs into the estuary.



Concern about poor water quality in urban streams.

*The Group was reminded of previous discussions on the state of the estuary*

Ahuriri Estuary is different from other catchments, due to the many small streams that flow into it and because the poor state of the estuary is driving land and freshwater management decisions. What remains of Ahuriri lagoon has been hugely modified by the 1931 earthquake and by human intervention, particularly drainage. Ahuriri Estuary is significant as a national fishery, for wildlife values and has important geological features. We should be both proud of it as a feature, but also see how we can improve it.



Ahuriri Lagoon before 1931



Tile drains were created in place of the exposed lagoon bed, after 1931

## Issues

Sediments are the ‘master stressor’ in this system, with muddiness on the rise in the estuary. Nutrient levels are high - particularly phosphorus, but also nitrogen; the invasive fanworm *Ficopomatus enigmaticus* (a filter feeder) is becoming prolific; stormwater quality is unacceptable. There are many areas where the current state and continuing activities compromise the values that people want to see. Upper Ahuriri has similar sediment issues, with macroalgae growth, elevated nutrients and the lasting effects of changes since 1931.

Shellfish gathering is not recommended because of stormwater discharging into the local area.



*Sediment and muddiness are a problem*

## Targeting improvement

Should the TANK Group focus on 30% less sediment, or 50%, or 20%? Improvements will come from best practice, farm plans, fencing, riparian and pole planting, selective dredging (removal of rotting plants such as raupo, bolboschoenus), etc. Currently missing is data on exactly where sediment comes from. We need to identify natural nutrient/ sediment impact vs man-made influence and determine a realistic mitigation target. The same sorts of improvement measures will apply to pastoral farmers and this is already being discussed with farmer groups. It is still uncertain whether sediment reduction of itself will reduce nutrient levels to an acceptable level.

## Toward a healthy estuary

The Group considered a management objective. Ideally we would look for a return to natural water flow patterns, good quality fresh and ocean water, healthy levels of sediment, open fish access, a range of healthy habitats, convoluted edging, natural vegetation sequencing, abundant, healthy and diverse species.

We also want the estuary to be a spiritual place that supports community wellbeing and is respected by all its users.



*Improvements will also restore the mauri to Ahuriri estuary*

The Group broke into feedback groups to discuss and debate options.

## What could management of the estuary include?

This depends largely on the surrounding community. Water quality and aquatic ecosystem enhancements might include integrated urban design elements: planting, swales, treatment wetlands, detention dams, sediment traps, better urban development and lifestyle block requirements.

A 30% reduction in sediment entering the estuary might be a starting point for pastoral areas. Noting 70% of sediment comes from natural occurrences, especially storm events. 30% is a total potential reduction on all farms – an aspirational goal. It would require all significant streams to be fenced, soil conservation works, tree planting and better riparian land management. An operational solution includes mechanical removal of the fan worm.

The Stormwater Working Group is yet to report back on management solutions for stormwater. The sediment reduction target will be included in the assessment of sediment reduction for the wider TANK area.

It was reported both NCC and HDC are doing a lot of work in this space and will give an update to the Group soon.

## 2. National Policy Statement Update

The Group heard about recent policy announced by the Government shifts water management focus in the National Policy Statement from Wadeability to Swimmability, which is significant for TANK Group decision-making. The government is also proposing some regulations for stock exclusion that may affect landowners in the TANK catchments.



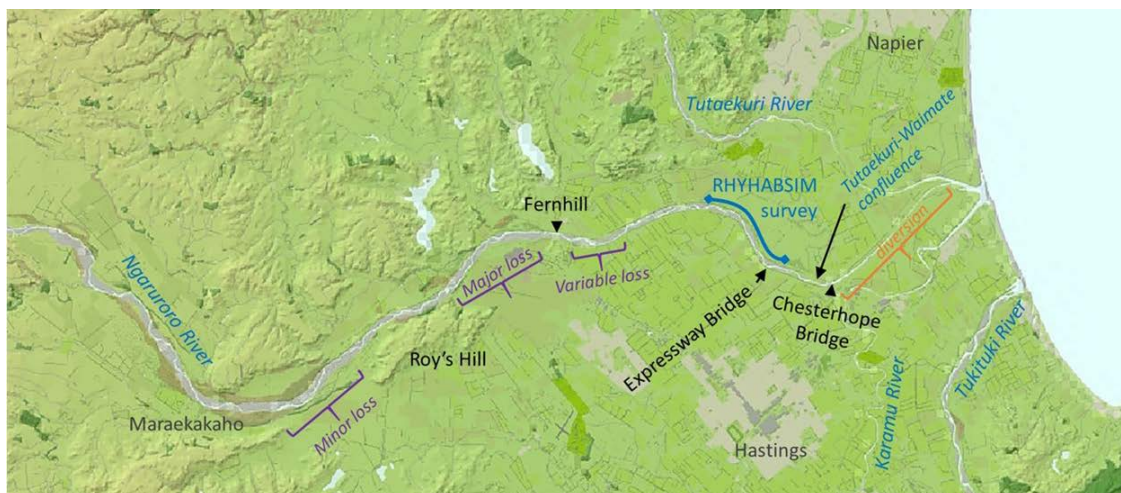
*Ngaruroro River at Fernhill*

## 3. Heretaunga Plains - Surface Water and Groundwater Modelling

HBRC Scientists Jeff Smith, Thomas Wilding and Pawel Rakowski gave presentations based on recent modelling work.

New science has led HBRC to revise upwards the MALF (mean annual low flow) for Ngaruroro River, from 4500 → 4700 litres/ second at Fernhill.

Previous water management has included water take restrictions based on flows at Fernhill. The TANK Group will use a the flow modelling tool RHYHABSIM (**R**iver **H**ydraulic **H**abitat **S**imulation) to understand the effects of water abstraction on the amount of habitat for fish. The model enables calculation of the flow in relation to the MALF that would result in a specified level of protection for fish such as torrentfish (who like fast, shallow riffles). RHYHABSIM gives valuable data during droughts when fish numbers are not constrained by other factors such as floods.



*This image shows the RHYHABSIM flow modelling survey site and other dynamics of Ngaruroro River*

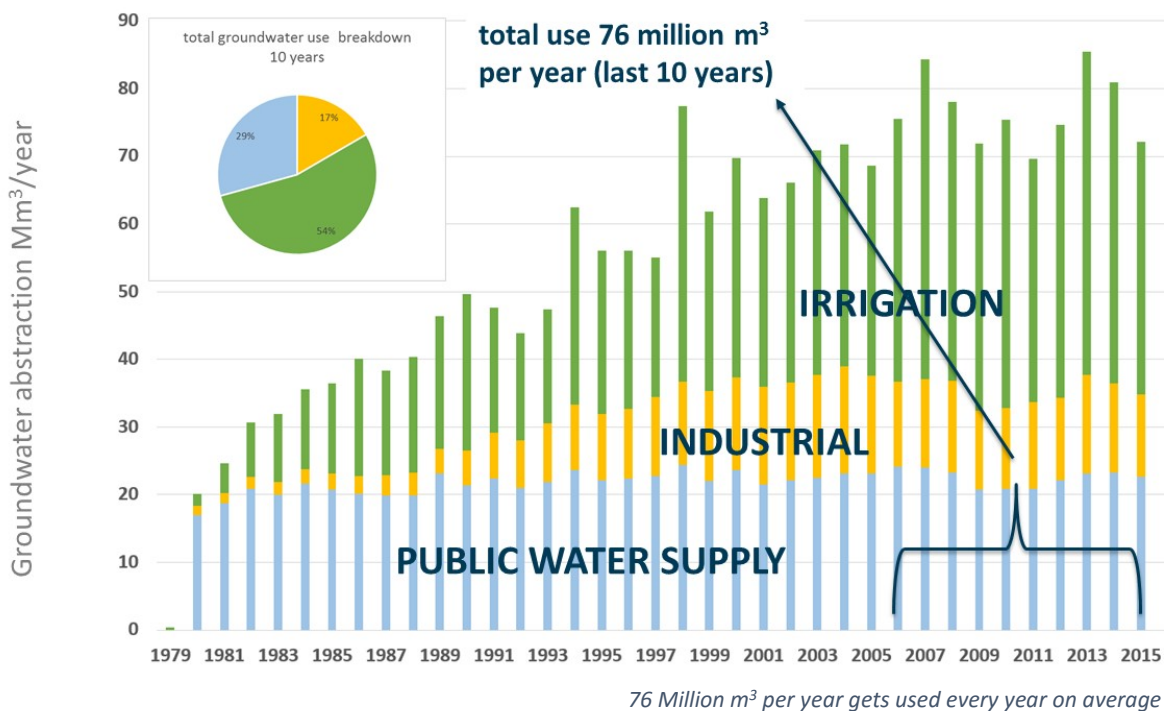
### MODELLING GROUNDWATER ABSTRACTION TAKE IMPACTS ON RIVER FLOWS

Groundwater is used for public water supply, industry and irrigation. The groundwater model was set up to investigate the effects on river flows of pumping this water, and identify mitigation options.

The model showed minimal response to pumping bans for all rivers, which wasn't as large as previously thought. For modelled scenarios, there was a greater percentage change to flows in smaller rivers (Raupare and Karamū) as a result of widespread irrigation bans than there was for the Ngaruroro flow.

The model was also used to test if artificial recharge of the aquifer (injecting river water to the aquifer during high river flows) could be used to alleviate low flows in the rivers. Unfortunately, results show a relatively small effect and quick dissipation, due to high transmissivity of the aquifer. A further mitigation option looking at whether flow augmentation of spring-fed streams is effective, such as the Raupare, is yet to be modelled.

The Group broke into smaller groups to discuss options, clarify and confirm understanding. All small groups returned with a range of questions and the wider Group then asked for more time to discuss and understand the implications of the model results before making any decisions.



#### 4. Water Conservation Order

The first meeting of the Tribunal could be 1-2 months away and the process somewhat delayed, so TANK recommendations will be more advanced than originally expected. This gives TANK recommendations a greater chance of being further developed and a key consideration for the Special Tribunal.

#### 5. In Brief

##### *MfE Freshwater Fund and Ahuriri Estuary*

The Council will be looking to apply for funding toward Ahuriri restoration as part of the Annual Plan process and the Ministry for the Environment's recently announced Freshwater Fund.

##### *Water Symposium/ Hui*

The focus of this event will be on Heretaunga, likely to take place in late May. An opportunity for HBRC, NCC, HDC, Ngati Kahungunu Iwi Incorporated and HB District Health Board to engage the broader community in the TANK Plan Change and get their views on these issues.

##### *Draft TANK Plan Skeleton*

This was not discussed due to lack of time. Staff will engage with mana whenua first to ensure Māori concepts and values are correctly expressed, then seek more feedback on the text.

##### *Sediment Management with Pastoral Farmers*

A further three meetings were held in March with Sheep and Beef farmers to consider the sediment reduction challenge. A newly-formed Reference Group will meet in May, to develop management options to the TANK group for reducing sediment losses from land including some bottom lines for some land disturbance activities and Farm Plans for every farm.

##### *Engagement Working Group*

A new **Talk TANK** newsletter will appear in community papers, and be circulated via email, at the start of April.

[www.hbrc.govt.nz](http://www.hbrc.govt.nz), search #tankresources for more details. © 2017, HBRC

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