



Ngaruroro was the focus of Meeting 21

Earlier this month, we shared the first THINK TANK newsletter with you. What did you [think](#)? If you missed it, catch up with where the TANK Group got to in [Think TANK 1](#).

At the 28 June meeting, the Group looked in detail at the values and uses of waterways in the Ngaruroro catchment. The Group tagged values to particular catchment areas using the [Attributes and Values Wheel](#).

There was debate on ‘how useful is it?’ to assign values without knowing what that means for landowners or relating to the mitigation measures that might be needed. There was also debate on the scale at which the group was working – on all watercourses or just the main tributaries?

These two points are important when the Group looks at ‘options to manage’ and the related costs. We will then be able to see how the objectives from this work can be met. In the meantime, the Group agreed to use this information about values to judge against the current water state.



TANGATA WHENUA

The work being done by Ngati Kahungunu Iwi Incorporated (NKII) will add to understanding about values and attributes. It will be reported to Council and the TANK Group in September for incorporation into the TANK work.



NEXT MEETING ...

The TANK Group will finish analysing Ngaruroro’s water quality as per the objectives, looking at clarity and turbidity and nutrient concentrations relating to algae growth. Focus then shifts to completing this same analysis for the Tutaekuri catchment.



NGARURORO and the NOF

The Group looked at how Ngaruroro water quality compared with compulsory parts of the National Objectives Framework (NOF) - a part of the National Policy Statement for Freshwater Management that sets attribute states to relate to some values.

NGARURORO and the NOF

Nitrate and ammonia concentrations are generally excellent causing no problems for aquatic life, except several isolated instances for ammonia. The Group will revisit these when covering management options.

Concentrations of *E.coli* are also generally excellent, except for some tributaries including the Ohiwia and Tutaekuri-Waimate Rivers.

Bacteria in surface water are at levels that pose no risk to stock drinking (via troughs, not direct access). Levels are also 'excellent' in all monitored rivers for secondary contact recreation, such as boating and wading.

However, bacteria are a significant risk in some tributaries for people swimming. The Group debated if all tributaries are used for swimming, and whether they all need the highest level of protection. High *E.coli* concentrations in tributaries may affect swimming sites downstream in the main river. The Group will go back to this when looking at management options.

Algae grows as filaments and mats and generally sits on the bottom of a river. The NOF requires algae to be at levels that ensure healthy ecosystems. This is measured as *chlorophyll a* – the green pigment in the algae. HBRC only has a few years of monthly *chlorophyll a* data at three key sites in the Ngaruroro main river, but it already shows the Ngaruroro has excellent levels – as required by the NOF – despite data reflecting two very dry years. Long periods of stable flow and warm weather cause more algae to grow, even in pristine upper catchment areas.

Algae are also an important indicator for other water values such as recreation, especially swimming, and the aesthetic quality of the river - how it looks, smells and feels. The amount of algae also affects a river's value for fishing, and can adversely affect tourism. Which kind of algae is present is also of significant concern. A blue-green algae called Phormidium sometimes produces toxins which has caused dog deaths.

There are now new ways of assessing algae levels in terms of the social and cultural values of water, which look at algal cover on the river bed (versus the amount of *chlorophyll a*), allowing TANK members to judge whether algae levels are acceptable. Data shows that in the main stem algae levels are excellent or good for ecosystem health and ecological condition. Algae in the lower Ngaruroro very slightly exceeds the guideline value for recreational values. The Maraekakaho River however, has algae cover above guideline levels for both ecological condition and recreation/aesthetic values.

Algae filaments + mats



Soft-bottom lowland rivers are more affected by macrophyte growth - plants that take root in sediment and grow into the water column - than by algae. This is assessed by how much of the channel that macrophyte growth takes up. Some macrophyte growth is desirable because it provides a stable habitat and supports invertebrates. Too much will cause problems with dissolved oxygen, pH and sediment. The Waitio, Ohiwia and the Maraekakaho all have more macrophyte growth than is desirable for ecosystem health, recreation, cultural and fishery values.

NOTE: we want profiles for each newsletter - email a brief bio and photo to drew@hbrc.govt.nz to help us show the varied perspectives of TANK Group.



NGARURORO SUMMARY

Location	Values	<i>Comment</i>
All water - surface and groundwater	Maori Life-supporting capacity Habitat and biodiversity - native fish, eels, plants and birds Trout fishery Household water supply Stock drinking water	Household water supply may need treatment because of natural water quality. This especially includes surface water, as there are animals and birds in the catchment.
All surface water	Swimming/immersion Mahinga kai Nohoanga, taonga raranga and rongoa Natural character - including wild and scenic as there is a high level of natural character Fishing - whitebait, eels, trout	Provision of access not part of this water quality management consideration Swimming not at flood flows or for urban streams Some Maori values are already included in the Regional Policy Statement
Surface – main stem below Whanawhana and tributaries – and groundwater	Food and fibre production/ processing (and employment) Industrial and commercial use (and employment)	Economic values – a small amount of forestry and farming also in upper catchment and Taruarau R tributary respectively.
Surface – main stem and tributaries	Tourism	
Main stem and Taruarau R	Boating – jetboating, kayaking, rafting	
Main stem, upper catchment tributaries and O’Hara river	Trout fishing	
Shallow lakes and wetlands	Commercial eeling	
Surface waters – tributaries	Small scale hydro-electric power generation	
Surface and groundwater	Direct discharges and non-point source discharges	More details (consent data) about direct discharges are required before making a decision about the use of surface waters for discharge of contaminants
Groundwater	Contribution to surface flows and water body values	