AGENDA

SUBJECT	**Whaitua Te Whanganui-a-Tara Committee Meeting**
WHEN	Monday 14 June 2021, 9am-5pm
WHERE	GWRC Council Chambers (100 Cuba Street, Te Aro)

Meeting purpose and design

Setting targets for attributes across spatial units will be the focus of two workshops, the first being on 14 June and the second on 23 June. The purpose of this workshop (1) is to establish a prioritisation of the Committee's values and principles to inform the drafting of targets across catchments – which will be the basis of the workshop (2) on 23 June.

The product of the meeting will be agreement on the one or more driving reason(s) for target states across and within whaitua catchment types. The outcome is to provide the project team direction to apply these as draft targets across all sub-catchment areas of the whaitua.

Please read the two meeting papers and consider which priority values or principles, and where, should direct the pace for change in improving water quality.

1. The memo *'Exploring priorities in target setting'* is a working document that we will work through in the sessions.
2. The memo *'Whaitua principles for target setting'* provides a suite of principled ideas that you will be able to bring into the dialogue based on their importance to you.

This will be a more facilitated day than recent meetings, with a series of workshop sessions to create space to dialogue through your prioritisation for target setting. Each session will begin with a short presentation on the 'choices' for targets, followed by a discussion and then a breakout group exercise.

9:00am – Tea and coffee on arrival

9:10am – Committee only session

9:30am – Karakia and opening, general business

9:45am – Introduction to the day and process

10:00am – Overarching values, how they are linked, their attributes and importance to communities.

11:00am – Morning tea

11:15am – Exploring the principle: 'Holding the Line'.

12:30-1:00pm – Lunch

1:00pm – Exploring generational choices for Human Health

2:00pm – Exploring generational choices for Ahua and Ecosystem Health

3:15pm – Afternoon tea

3:30pm – Priority outcomes and rationale across the main catchments

4:30pm – Wrap up and next steps

5pm – Karakia and closing

MEMO

TO	Whaitua Te Whanganui-a-Tara Committee
FROM	Project Team
DATE	11 June 2021
TOPIC	Exploring priorities in target setting: Overarching values and choices between targets

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Introduction

The long-term vision for water quality for Whaitua Te Whanganui-a-Tara is categorised as "Te Māuri ora o te Wai for all waterbodies over 100 years". The shape of the journey to achieve that outcome, however, is yet to be determined. The ability to achieve the vision for many waterbodies in this Whaitua should not be underestimated as the resources and effort to avoid decline in water quality and off-set the negative effects of climate change is sizable. Our path towards improvement will need to be broken down into ambitious but achievable steps.

Target states for different time periods will influence spatial priorities and the sequencing of implementation of the WIP recommendations for improving water quality. The Committee workshop on 14 June will help reveal your preferences for ambitious and achievable target setting.

This paper helps explore the choices between priorities through the application of principles from the Committee and Te Kāhui Taiao. Please refer to the partnering memo *Whaitua Principles for Target Setting* and consider how emphasis on any one equity principle or area would alter where targets should be stronger and direct greater effort.

These 'choices' below are presented through six overarching values (**mahinga kai, ahua, wairua, community connection ecosystem health and human health**) applied through three broad catchment types (forested headwaters, urban and rural) and wai tai (coastal waters) where these are connected.

Overarching Values

The overarching values have been highlighted for their comprehensive relationship to many attributes and measures for which targets can be set.

Mahinga kai, ahua, wairua, community connection, ecosystem health and human health are described below with their linkages to each other.

Your relative priorities and desired pace of change for water quality improvements will direct the populating of target states across the whaitua and develop your understanding of the degree to which various outcomes are able to be met through time.

Mahinga Kai

Mahinga kai can be seen as an integrator of many kinds of outcomes that need to be present to fully realise this important value; a compulsory value in the NPS-FM 2020. Mahinga kai is defined in the PNRP as "The customary gathering of food and natural materials, as well as the food and resources themselves, and the places where those resources are gathered". The health of mahinga kai encompasses the viability of the social and educational elements of food gathering. It also encompasses the way resources are gathered, the places and access to where they are gathered from and the health and abundance of actual resources themselves.

For tāngata whenua, it is not just the visitation of spaces that is good for the wairua, but also certain types of activities that water provides for, with mahinga kai in particular being recognised as good for the wairua of the people. There is great enjoyment and stimulation that people receive not just from eating mahinga kai, but from the process of gathering and preparing it, and the connection to the land and water they experience through that activity. It supports people's self-esteem and their sense of satisfaction to be able to continue these practices, and to be able to provide for their whānau and for others.

With the identification of mahinga kai as a national value it is critical that work to build a baseline knowledge of mana whenua attributes starts immediately in Te Whanganui-a-Tara so that we can begin to align what western science is telling us with the broad range of mana whenua values to build a complete picture of mātauranga pertaining to our environment. For now we know that human health, ecosystem health, and access are important components of the ability to exercise the value of mahinga kai.

Ki Tai – Mahinga kai coastal connections

Mahinga kai experts see little real distinction between the health of freshwater systems and that of marine environments. There is an acute awareness that the marine environment, in particular the shellfish beds, is the receiving environment for freshwater ways, and that therefore the mauri of freshwater catchments is an important value and factor in the protection of marine waterways. Excessive inputs of nutrients and other contaminants into waterways have created imbalance in the ecosystem and have had devastating effects on the mauri of waterways, beaches, mahinga kai and our people.

Te Kāhui Taiao have drafted outcomes for mahinga kai to describe when this value is realised that sites are: 1. Are accessible to iwi and hapū, 2. Are available for use by present and future generations, 3. Are safe to harvest, 4. Are safe to eat, 5. Are diverse and abundant across all life stages, and 6. Are plentiful enough for long-term harvest, including for manuhiri and to exercise manaakitanga.

Additionally that mana whenua are able to exercise decisions about management and harvest and that the mauri of the place is intact.

Ahua

The first obligation in Te Mana o te Wai is the health and well-being of water bodies and freshwater ecosystems. Te Mana o te Wai 'protects the mauri of the wai' and 'it is about restoring and preserving the balance between water, the wider environment, and the community' (NPS-FM 2020).

Kei te ora te mauri - the mauri of the place is intact - involves more than western measures of ecosystem health. Ahua helps show us other dimensions of mauri.

Te Kāhui Taiao have drafted Ahua as: the natural character of an area, and may include exceptional, natural, or iconic aesthetic features. Matters contributing to the natural form and character are biological, visual and physical characteristics valued by a community. Outcomes for the fulfilment of of Ahua include:

1. The awa has a natural variation of flows. The stream is able to meander and has natural beauty.
2. The water is clear with good clarity so that the bed of the awa is easily visible.
3. The awa and its corridor smell of clean water, native forest and the forest floor.
4. The voice and personality of the awa can be heard and seen. The presence of native flora and fauna can be observed and heard in the water spaces.
5. The voice and personality of the awa reflects the natural variations in flow, the movement of bed material, and bird and insect life within the river corridor.
6. The awa and the area immediately surrounding it is a place of beauty and it feels serene and uplifting both in and out of the water.
7. The natural flow of the water down the awa is not constrained by instream structures. The awa is able to express its natural form and has a natural pattern of pools, runs and riffles.
8. The full extent of the banks of the awa and the river corridor is vegetated and there is a dominance of indigenous flora that shade the water and provide habitat for native fauna. There is a good presence and cover of native vegetation. This helps maintain naturally cool temperatures and the area is dominated by the sounds of native manu like tui, kākā and korimako and native insects like kihikihi (cicadas) and pihareinga (crickets).
9. The aquatic, riparian and forest ecosystems are healthy and well populated. The habitat required to support mahinga kai and other native species is available.
10. The te reo names of awa, are promoted and their history, relationship with mana whenua and their personality are told through signage and community education.

Different elements of this and other values may be able to be achieved more quickly than others, depending on what efforts are prioritised.

Wairua

Te ao Māori has an understanding of water that comprises a broad spectrum of interrelated values, and sees water as a process of interrelated phenomena. Water is valued as providing fundamental existential values, in terms of it being fundamental to the physical survival and balance of life, but also in having deep psychological values in supporting people's sense of identity and place in the world, and their emotional and spiritual well-being. The ecological health of waterways has flow-on effects both for the wairua of people, in terms of the ability for water to either continue to support their psychological and emotional well-being, or to become a source of stress or trauma because of its poor health, and for the whakapapa value of water, in that people will become disconnected from waterways that become unsafe for them to have contact with, or stop producing food for harvest. Water is the lifeblood of Papatuanuku and we are all descendents, the health of the water affects the health of atua and tupuna through this whakapapa.

An example of a poor state of wairua is the emotional distress caused by an awa in wai mate (poor state). A positive state might be felt in vibrancy, joy, connection and mana for the people and the awa (wai ora state).

Mai uta ki tai – From mountains to sea

Mai uta – typically wāhi tapu sites used for pure, tohi (baptism) and other cultural wellbeing practices. Most permanent kainga/pā were often located further down catchments, these areas further up were used seasonally for gathering mahinga kai, and as navigational routes. Today, there is a history of disconnection to the land and knowledge of wāhi tapu sites. These places are often still visited for mental, emotional, psychological and spiritual well-being, although access is another thing to consider in the upper catchments.

Ki Tai – Most permanent kainga/pā were often located further down catchments, particularly near estuaries and along the coast. Both mana whenua and tangata whenua still have strong connections to these sites, however these areas have undergone a lot of modification. The receiving environments are typically under pressure from activities further up the catchment. If people are able to visit these areas they can often feel a sense of environmental distress. We need to consider how we can enhance these habitats not only in terms of fish spawning sites, but also for the enhancement of people's well-being and connection to place. How can we make the history of the place come to life, remembered and shared as a collective?

Community connection

Community connection has been articulated by the TWT Committee as a vital expression and outcome of a paradigm and behaviour change for all people towards freshwater. For the Committee Te Mana o te Wai also means all waterbodies deserve respect and the people interacting with them should act with self-responsibility. It has been recognised how freshwater environments add to people's mental health, spiritual connection, identity, sense of place, story and culture, as well as physical health needs. And the Committee recommends aspects of this are measured as an outcome to show increasing connection over time as a demonstrable result. In this way community connection has parallels to wairua and is a product of people's relationship

At the Committee workshop, 26 May 2021, it was debated which measures are proxy or means to community connection and which describe the outcome itself. You may want to express the measured increase in community connection over time in one or more of these ways.

Ultimate outcomes of community connection that have been expressed include: i) people are taking self-responsibility and ii) streams are safe to play for children.

Other measures have been mentioned include:

- Is there a "friends of … [stream]" or other anchor community group? i.e. % of catchments with active groups
- What is the proportion daylighted? i.e. able to be visually and physically connected with.
- What is the extent of access like? Is the waterbody accessible to children (supervised)?
- Is there active citizen science? i.e. % of all catchments with citizen science.
- What is the proportion involved in community clean-ups?
- Are community groups in communication with each other? (In their area or across whaitua)
- Is kai safe to eat (tuna/ koura)
- Have our 'forgotten' streams and piped water bodies been named?

What measures of community connection will best describe the improvement you want to see over time?

Ecosystem Health

Wai maori (freshwater)

Ecosystem health, defined as the degree to which an aquatic ecosystem is able to sustain its ecological structure, processes and functions, varies across the Whaitua. Macroinvertebrates, as measured using the macroinvertebrate community index (MCI), are a good integrated attribute of ecosystem health as they are affected by a range of stressors. This makes macroinvertebrate communities useful to identify where we need to improve our management of these stressors and to show when these pressures are sufficiently addressed.

There are also a much larger suite of ecosystem health attributes. Some of these are expressed within an 'attribute' framework (eg, metals, sediment, periphyton and fish), while others are not, such as habitat and peak flow.

Many of these offer diagnostic insight to help direct management efforts at the catchment scale towards ecosystem health improvements. The relative importance of different stressors upon ecosystem health is very catchment specific, expert panel assessments were uncertain how much catchment actions improve some of these stressor attributes, and how much that ultimately improves ecosystem health. You have recommendations that point towards managing these stressors to achieve ecosystem health targets, particularly through your urban stormwater and wastewater management and the rural sediment and streambank management recommendations.

We recommend using the MCI to explore the implications of different potential choices for ecosystem health targets, and to be the 'headline' attribute to express ecosystem health targets. The preferences revealed through MCI target setting will allow the project team to populate targets for other (stressor) attributes. We advise against setting nuanced targets for stressor attributes as there's uncertainty around the relative importance of each and its contribution towards ecosystem health targets at the catchment scale. Without finer scale knowledge, stressor targets may unhelpfully direct landowners and institutions effort towards actions that improve stressor attribute state but have relatively low marginal returns towards achieving the ecosystem health target.

Wai tai (sea water)

What happens on our land, moves through our rivers and streams to the sea, wai tai. The characteristics of the coastal environment also influence how those can respond to the freshwater inputs.

Open coast environments (i.e, western and southern coastlines) tend to be in good condition because these highly dynamic (e.g., waves and strong currents) and often high energy environments are less vulnerable to the accumulation of contaminants and cumulative effects. This means that freshwater impacts upon these environments are not well understood. Targets in open coastal areas are less likely to drive improvements in catchment actions.

Estuarine environments tend to be low energy where freshwater contaminants accumulate creating more long lasting and sometimes permanent issues. These places can be highly vulnerable to deterioration from land use practices and the effects of climate change, which may add additional stress to ecological health. Restoration of estuarine environments is expected to be slow due to legacy effects of accumulated contaminants in sediments following significant improvements in water quality. Setting targets for these environments will help drive catchment actions to avoid further deterioration, however, targets also need to recognise that measurable improvement in some coastal environments may take longer than generational change.

Human Health

The condition of the water can also affect human's health. Pathogens from humans, domestic animals and wild animals can make their way into water and, in high enough amounts, pose a risk to human health when we're in the water for play, collecting mahinga kai or spiritual practices. In some

places, other factors can present risks too, for example, toxic algae (cyanobacteria) in Te Awa Kairangi/ Hutt River.

For the purpose of exploring priorities in target setting to reduce health risk, we recommend using *E. coli* (and Enterococci in wai tai (coastal water) as the attribute of focus as it has relevance across all catchments of the Whaitua and for many types of activities and values.

Exploring 'Choices' (Workshop session starting 1pm, 14 June)

Human health

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Headwater forested catchments

Forested headwater catchments are generally characterised to have good / excellent (B state or better) *E. coli* concentrations and there is generally a low risk of infection from recreating in these areas. Those sites not in the A state are thought to be the result of the small amount of not forested land cover in these catchments; i.e, rural land cover in the Pakuratahi and Akatarawa catchments and urban land use in the Whakatikei catchment.

Prioritising improvement of these headwater catchments by setting A state target for *E. coli* would support the improvement and protection of te mata puna (source of water) and provide for cultural practices such as baptism. In contrast, maintaining the current *E. coli* state in the forested headwater catchments would allow greater focus on those rural and urban catchments and mana whenua sites of significance that currently have a high risk of infection and are in a generally poor state.

Urban areas

Monitoring shows urban streams are consistently in a very poor (E) state in our urban streams across the Whaitua. There is high risk to human health and this poor state is occurring during both wet and dry weather conditions.

A large contribution to microbial pathogens in the urban freshwater streams is from human wastewater, due to leaks (old pipes), overflows (during wet weather events) and direct illegal cross connections (wastewater plumbed into the stormwater network). You have recommendations that address these contributors in urban areas, but there's not yet any expression where we might be wanting to work harder or earlier to achieve human health gains.

The expert panel did not expect any further deterioration in in-stream *E. coli* levels.

Current wastewater design standards require that new development don't make overflows worse and storage can attenuate peak flows. However, this can be challenging to achieve, particularly in dense urban areas where infill or commercial development is occurring (such as new office or apartment blocks) on low lying land.

The task to repair the network, and for the in-stream benefits to be realised, will take a substantial amount of time (decades). This means we need to temper expectations around the *E. coli* shifts we are likely to see in the short-term, though there is urgency to begin the work needed to see change over the longer term.

The expert panel assessment found that similar amounts of reduction could be achieved in *E. coli* levels in all urban streams assessed. This represents the accomplishment of very large amounts of expensive and disruptive work for public entities and private landowners, and your recommendations outline a pathway to achieve that work.

While the potential results of this work are likely to be the same for all catchments, the size of that task in each catchment will vary considerably. The wastewater pipe condition assessments help illustrate this:

Catchments	Wastewater network in poor/very poor condition		Average number of overflows in monitored locations
	% of catchment network	Length in catchment	
Wellington City	~32%	~149km	~24/year at 51 locations
Ōwhiro Stream	~22%	~11.6 km	~2/year at 3 locations
Karori Stream	~31%	~25 km	~2.5/year at 2 locations
Waiwhetu Stream	~38%	~50.3 km	~2.5/year across 2 locations
Hutt valley floor	~25%	~98 km	~6/year, primarily at Silverstream storage tank
Western Hutt hills	~33%	~66 km	No wastewater overflows recorded

Choices for the committee to consider and weigh-up:

- Setting 'generational' targets to reach a "C" target state for *E. coli* set an expectation of ambitious but achievable improvement of human health. This gives an equal ambition for the level of the value provided, but requires differentiation in the level of effort to manage the stressors and achieve that provision of human health.

- However, these targets do not give any signals as to where this might be desirable to achieve earlier. Focusing efforts could mean that some places achieve the target earlier than others. Spreading efforts might mean that widespread work is visible, but the resources may be insufficient in any place to achieve the target before all works are completed.

  Do you have any preferences to see progress in some areas first, or spread efforts everywhere?

- The details of the attribute also recognises there are different times of risk (ie, dry weather or wet weather). In urban settings, these approximately relate to different types of wastewater network faults. Your recs are currently aiming to address faults associated with both dry and wet weather without any priority direction.

  Do you want to give any direction to focus first on particular times of risk that are more important for you, or keep the efforts spread to work across both times of risk?

- Recreation and Mahinga Kai

  Risks in coastal areas are expected to be in fair/good (C/B) state on the south coast and fair (C) state in the harbour areas. Risks are typically greater during wet weather, particularly for the harbour areas. There have also been a number of high profile wastewater network failures in recent times which have highlighted dry weather risks to the inner harbour particularly, but also South Coast.

  Expert panel considered that the wastewater network improvements were likely to be beneficial to receiving environments on the South Coast and harbour, with the

improvements likely to maintain South Coast at a fair/good (C/B) state and shift Inner Harbour sites to a (good) B state.

Sites along the inner harbour that currently have high recreational usage include the diving platform (Queen's Wharf), Oriental and Evan's bays.

Does swimming popularity in the stream/receiving environment affect the targets set and the sequencing of management efforts?

- *How can our committee support the use of mana whenua sites of significance as indicators of places to prioritise earlier intervention and/or seek a greater shift?*

Rural areas

Rivers and streams that have a high proportion of forest in their headwater, higher flows and greater levels of stock exclusion (for example Mangaroa and the rural areas of Pakuratahi) tend to be in a better state than those with lesser forest, steeper grazed areas and lower stream flows (for example, Makara and Ohariu). All rural catchments are at risk of not holding the line without increasing their efforts to manage *E. coli* risks to streams.

With significant effort, *E. coli* levels in streams can be improved, however, the outcome of that effort is not expected to be the same in all catchments. The flatter topography and better starting conditions for Mangaroa might allow it to reach a good (B) and Wainuiomata might reach a fair (C) state. However, the challenging conditions of rural activities in steeper areas, such as Makara and Ohariu are significant constraints to implementing management actions, particularly stock exclusion and septic tank management, and limit the improvements achievable. The expert panel considered it unlikely these catchments could reach fair (C) state even with significant effort.

Actions within the rural Makara catchment are likely to see only a slight improvement within the fair (C) state for Enterococci at the Estuary. Actions within the Wainuiomata catchment are likely to maintain Wainiomata estuary in good (B) state. Pathogens in the open coast are expected to be very low (A) in both parts of the open coast, though wet weather may produce brief periods of elevated risk for the western coast.

<u>Choices for the committee to consider and weigh-up:</u>

- *Should we aim for a similar "C" target everywhere?*

  Implementation of your and new national recommendations may result in Mangaroa 'overachieving', while catchments like Makara and Ohariu are likely to need significant amounts of targeted work.

  This approach could allow for resources to be deployed towards those areas with extra effort required and have lesser emphasis in those areas expected to hit the target with relative ease.

- *Should we aim to maintain the current for a D state in the Makara and Ohariu catchments, but prioritise effort towards eliminating dry weather exceedances?*

  This could be done by setting a B or C state target for the wet weather (95 percentile) *E. coli* metric. This would still require significant action but would allow for resources to also be deployed in other catchments.

- *Should we pick out Mangaroa for a higher (B) target, with a lesser (C) target throughout the rest of the catchments?*

Setting a higher target in this area reflecting the water sensitive result is an 'ambitious but achievable' target and signals that maximum effort is required across all catchments. However, this may stretch any support resourcing and amplify difficulty in reaching the target for those south-western catchments that are expected to struggle in reaching a (C) target.

- *How can our committee support the use of mana whenua sites of significance as indicators of places to prioritise earlier intervention and/or seek a greater shift?*

Ahua and Ecosystem Health

Headwater forested catchments

The predominantly forested catchments of Te Awa Kairangi headwaters, Whakatikei, Akatarawa, Pakuratahi, Mangaroa, Orongorongo and Wainuiomata have excellent MCI scores and are generally characterised to have excellent / reference state ecosystem health. However, environmental distress through the lower reaches of these catchments means the Wairua of these catchments is not as strong when viewed through a mai uta ki tai perspective.

There are also some stressors (i.e., exotic forestry, water takes, urban sprawl and agricultural land use) within these predominantly forested areas that may be having some isolated effects on water quality in the catchment and within coastal receiving environments (e.g., Wainuiomata estuary has limited ability to flush contaminants due to a series of dams and water takes which causes cyclical build up of nutrients, organic matter, algal and macrophyte growth).

<u>Choice for the committee to consider and weigh-up:</u>

- Maintain current excellent "A" attribute state for ecosystem health and prioritise resources and effort into other areas (rural and urban) in these catchments where ecosystem health is in a poorer state so as to improve wairua. There is likely little need to actively manage the few stressors in these forested areas in the short-term.

Urban areas

Macroinvertebrates are in fair (C state) condition in most of the monitored catchments throughout our urban areas. More heavily urbanised catchments (eg, Waiwhetu, central Wellington City) are generally in a poorer condition, while upper reaches where there is less urban development are in a slightly better condition.

You have recommendations that address each of the stressors upon MCI through urban areas, but there's not yet any expression of where we might be wanting to work harder or earlier to achieve ecological health gains.

We need to have strong management of the many stressors to hold the line due to the anticipated effects of climate change and urban development. In those stream catchments where housing density is expected to increase, such as Karori and Kaiwharawhara, greater action will be required just to maintain current state and off-set the drivers of the "urban stream syndrome". In contrast, spring-fed streams, which tend to be more bufferted to the effect of climate change, are likely to be more resilient and require less actions to maintain their current state. Spring-fed streams receive groundwater contributions during the warmer summer months, which buffer the effect of climate warming.

With enough uptake of water sensitive urban practices, many urban streams could be improved to a 'good (B)' state of MCI. However, hill-fed catchments and those very heavy levels of existing development are unlikely to improve without further targeted and active management.

Choices for the committee to consider and weigh-up:

- Setting targets to give equal effort would see different provision of the ecosystem health value in different types of urban catchments. Hill-fed streams of Wellington and western Hutt Valley, and those with very heavy urban development would likely maintain in 'fair (C)', whereas spring-fed streams (eg, through Hutt Valley) could improve to 'good (B) state.

- Setting 'generational' targets to give an equal ambition for the level of the ecosystem health value provided, but requires differentiation in the level of effort to manage the stressors and achieve that provision of ecosystem health. Setting a 'good (B)' state in all urban streams could be achievable, but would require particular effort to be directed towards hill-fed catchments and those with very heavy levels of existing development.

- *How can our committee support the use of mana whenua sites of significance as indicators of places to prioritise earlier intervention and/or seek a greater shift?*

  Kaiwharawhara and Waiwhetu are catchments that were not expected to reach B state by the expert panel. Reaching B state may be a stretch, using target state to express further improvement expectation above other urban catchments will be particularly hard. Does the need for extra emphasis to reach B reflect their importance appropriately?

  The channelisation of the Kaiwharawhara Estuary means its natural processes no longer operate as they should, contaminants are essentially flushed through the channel and it has A state for most 'water quality' parameters. However, the lack of natural habitat affects the overall poor ecosystem health, and this alongside poor access gives the estuary poor Wairua, Ahua, Whakapapa and provision of Mahinga Kai.

  A challenge associated with restoration in Kaiwharawhara Estuary is that while ecosystem health and cultural values may increase, other parameters may reduce as residence time for flows become longer allowing contaminants to accumulate. Catchment actions to reduce the stressors may help, but it's uncertain if this would be sufficient to maintain this 'artificial' A state for these parameters.

- *How might places for Mahinga Kai collection help prioritise earlier emphasis of efforts?*

  Places of importance for Mahinga Kai within urban areas?

  Mahinga kai experts see little real distinction between the health of freshwater systems and that of marine environments. There is an acute awareness that the marine environment, in particular the shellfish beds, is the receiving environment for freshwater ways, and that therefore the mauri of freshwater catchments is an important value and factor in the protection of marine waterways.

  Excessive inputs of nutrients and other contaminants into waterways have created imbalance in the ecosystem and have had devastating effects on the mauri of waterways, beaches, mahinga kai and our people.

  Expert panel advice on the ecological effects of wastewater inputs and leachate from landfills on the marine organisms of the South Coast is unknown. Sediment and metal inputs are generally not an issue on this dynamic coastline, however pulses of sediment and contaminants entering during large rainfall events can have significant adverse impacts on the reproduction, settlement and survival of a range of organisms. Reducing these risks could offer small benefits to coastal ecosystem health, however, key ecosystem components are currently present and functioning to a high level along the South Coast, and are expected to continue to do so.

Rural areas

Macroinvertebrates are in fair (C state) condition in most of the monitored catchments throughout our rural areas. Similar to urban areas, the specific combination of stressors affecting macroinvertebrate health varies from catchment to catchment. Key rural stressors identified by the expert panel included loss of habitat, nutrient enrichment and climate change.

You have recommendations that address these stressors upon MCI through rural areas such as farm and catchment plans, septic tank management and sediment control. There are also new central government regulations (i.e., 360 and stock exclusion regulations) that will help reduce the impact of stressors on rural streams. However, these recommendations do not play out equally across the rural catchments (i.e., stock exclusion) and there is not yet any expression of where we might be wanting to work harder or earlier to achieve ecological health gains.

Similar to Urban areas, we need strong management of the many stressors just to hold the line due to the anticipated effects of climate change. Ecosystem health in all monitored rivers and streams in rural catchments were predicted to deteriorate by the expert panel if current management practices were allowed to persist. Strong management is particularly important in the western areas of the Whaitua (Makara and Ohariu) where the effects of climate changes are predicted to be severe.

With enough uptake of strong rural management practices for these stressors, rural rivers and streams could be improved to a 'good (B)' state of MCI.

<u>Choices for the committee to consider and weigh-up:</u>

- Setting targets to give equal effort would see different provision of the ecosystem health value in different types of rural catchments. In the Makara and Ohariu catchments where climate change is particularly severe and stock exclusion rules don't generally apply, maintaining a 'fair (C)' state might be all that can be expected. In contrast, the rural areas of the Mangaroa and Pakuratahi where climate change is not quite as severe and there are strong stock exclusion requirements an improvement to a good (B) or excellent (A) state is feasible.

- Setting 'generational' targets to give an equal ambition for the level of the ecosystem health value provided, but requires differentiation in the level of effort to manage the stressors and achieve that provision of ecosystem health. Setting a 'good (B)' state in all rural streams could be achievable, but would require particular effort to be directed towards those catchments where climate change may be more severe and topography adds significant challenges to achieving widespread stock exclusion.

- *How can our committee support the use of mana whenua sites of significance as indicators of places to prioritise earlier intervention and/or seek a greater shift?*

  Significant mahinga kai sites in rural areas, or mahinga kai sites affected by rural contaminants, could be used to prioritise those streams that receive earlier intervention and/or seek greater shifts. For example, immediate improvements might be required in the Makara and Ohariu streams because the Makara estuary and coast are significant mahinga kai gathering sites. Reaching a B state for ecosystem health in the Makara and Ohariu in the immediate timestep may be a stretch (currently a C state), using target states to express further improvement expectations above other rural catchments will be particularly hard.

Does the need for extra emphasis to reach B state in order to drive improvements in the estuary reflect their importance appropriately?

- Note that some aspects of ecosystem health improvement in the catchment will take some time to become apparent in estuarine environments. For example the key components of ecosystem functioning are present at Makara estuary but in a degraded state. The low macroinvertebrate state (D band) is likely resultant from stressors such as excessive sediment input, poor sediment oxygenation, frequent nuisance algae blooms, and low oxygenation from algal decay. Actions in the catchment to reduce sediment will likely see slight improvement within the D band for macroinvertebrates and mud content is expected to improve from a C band to a B band. However, this improvement might be difficult to discern on top of the historical mud deposition. While incremental differences to ecological health relative to current state may be barely measurable, it is important to note that this does not mean that the changes may not be ecologically significant. Public restoration efforts and stock exclusion may also help with the perception of improving health of the estuary.

Te Awa Kairangi mainstem

Most of the ecological attributes are in excellent condition. Depending on where you are, may be some (expected) impact of the upstream urban and (to a lesser extent?) rural land uses.

The targets set for the urban and rural areas would be expected to make commensurate improvements for mainstem Te Awa Kairangi. If further shifts are sought – we would need to work back up and figure out stronger actions (and maybe targets) in those contributing catchments.

As noted in the *E. coli* for urban areas section, the changes sought are already very ambitious. To go beyond the targets indicated, would require even more efforts beyond the substantial amount recommended, which already have questions as to their feasibility and affordability of that pathway.

Te Awa Kairangi discharges large amounts of sediment, nutrients, pathogens and possibly toxicants to the harbour during high flows. Intertidal sediments in the Hutt Estuary are in good health, but in dredged subtidal areas macroinvertebrate communities are significantly degraded, sediments are enriched, anoxic and have elevated concentrations of nutrients and some heavy metals. Much of this contamination will remain as a legacy even though slight improvements to the mud content can be expected as a result of catchment actions upstream.

Both the Hutt River and Korokoro Stream estuaries are heavily modified with low habitat and biodiversity. Both are high priority for protection and restoration which will improve the habitat for indieneous species and overall ecosystem health. Consideration of restoration efforts at these sites may be helpful for the public perception of improving the health of the estuary along with actions in the catchment.

<u>Choices for the committee to consider and weigh-up:</u>

- *Set targets for Te Awa Kairangi mainstem in line with the choices suggested for the upstream catchments?*

  This approach keeps alignment with the preference choices you've considered and suggested for the catchments that contribute to Te Awa Kairangi mainstem and receiving environments.

- *Set more stringent targets and reconsider how that affects the direction of efforts in these upstream catchments and others in the Whaitua?*

  This approach gives weighting to the desired shifts in Te Awa Kairangi mainstem and receiving environments. This could necessitate reprioritisation and redirection of efforts into the catchments contributing to Te Awa Kairangi in order to achieve the desired shifts.

- *How can our committee support the use of mana whenua sites of significance as indicators of places to prioritise earlier intervention and/or seek a greater shift?*

  For example, Motutawa pā and Maraenuku pā are former pā sites along Te Awa Kairangi near Belmont that are also mahinga kai sites. The mouth of Te Awa Kairangi is also mahinga kai.

MEMO

TO	Whaitua Te Whanganui-a-Tara Committee
FROM	Project Team
DATE	9 June 2021
TOPIC	Principles for setting water quality targets and timeframes

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Purpose

The purpose of this memo is to describe the principles from the Committee and Te Kāhui Taiao on which water quality targets will be set. At the 14 June Committee workshop, the focus will be to deliberate the prioritisation of these principles to inform the drafting of these targets. The 23 June Committee workshop will involve a place-based review of these targets across the whaitua catchments. These targets are a core decision-making area of the Whaitua Committee and will direct the level of effort required across catchments of the whaitua and the pace of change toward the long-term vision. The Committee has agreed or debated many principles and rationales for agreements to date which, in many instances, complement or contend with each other and are not always straightforward to resolve. In accordance with the NPS-FM 2020, these targets must be "ambitious but reasonable (that is, difficult to achieve but not impossible)".

Kawa

- During its establishment phase, the TWT Whaitua Committee set a tūāpapa (foundation) for its work by articulating a Pūtake statement and four Kawa. These were to create common ground for deliberations and a direction that all recommendations of the TWT Committee would be in line with and not contradictory to the Kawa.
- Link to Kawa

Equity

- The Committee also established a principle of equity that is central to the vision for the future of water in the whaitua. This is not a simple balance to achieve.
- Key equity principles for freshwater improvement outcomes have been:
    - socio-economic equity
    - spatial equity between catchments
    - intergenerational equity
    - mana whenua values, outcomes and measures having effect in regulation alongside 'Western' values and measures
    - equity between public and private good
    - equity in the equivalence of effort between rural and urban obligations and
    - restorative justice where restitution of harm is directed to waterbodies themselves and not just to the people.

Te Mana o te Wai

- The concept of Te Mana o te Wai has changed over the duration of the Committee's mahi with the release of the NPS-FM 2020. The Committee's recommendations must fulfil the

purpose and obligations of Te Mana o te Wai. In the NPS-FM 2020 this involves a hierarchy of obligations, six principles and five requirements.

- The hierarchy of obligations implies a priority of outcomes, to be achieved over time, which should be reflected in the water quality and quantity targets of the Committee's recommendations.
- At the 12 May 2021 Committee workshop, an expanded articulation of the hierarchy of obligations in Te Mana o te Wai for this whaitua was discussed that resolved:
    - First obligation involves *Te mauri ora o te wai* – the health of water; the health of atua and tupuna are the first priority for mana whenua.
    - Second obligation involves *Whakapapa* – human health needs AND *Ngā mahi a ngā tupuna* – uses that support mana whenua and community identity; to ensure continuation of whakapapa from atua to future generations; supply for essential needs now and future proof quality drinking water, hygiene and spiritual needs; water that supports community connection, mental health, rituals, water in swimming spots, community vegetable gardens, mara kai on marae, etc.
    - Third obligation involves *Kia whakapuāwai te taiao* – water provided for other uses; commercial uses are acknowledged for their importance to community prosperity, physical and mental wellbeing as well.
- Link to Te Mana o te Wai Factsheet

Kaupapa, Tikanga and Mai uta ki tai – Te Kāhui Taiao

- Te Kāhui Taiao working group has led a body of work to identify mana whenua values, outcomes and interests. They have invested in further defining what the fulfilment of Te Mana o te Wai means for mana whenua in this whaitua. They articulate a set of Kaupapa, which shape their recommendations, values and outcomes.
- Developed by Te Kāhui Taiao, the Committee adopted an expanded framework of Tikanga and mai uta ki tai (mountains to sea) principles that should be given effect to in every catchment and water body of the whaitua.
- Valuing Āku waiheke (small streams) and Te Mātāpuna (sources) directs thinking in terms of improving māuri and health throughout a waterbody rather than solely changing the NOF state (e.g. A, B, C, D or E states)
- Link to narrative document

Timeframes - Pace of Change for Improvement

- In late 2020, the Committee considered principles to be a basis for decisions on target states across timeframes.
- From the framework these were expressed as the following
  Our Whāinga / Objectives
  1. Stop further degradation of our freshwater
  2. Start making immediate improvements so water quality improves within five years
  3. Reverse past damage to bring our waterways and ecosystems to a healthy state within a generation.

Additional Concepts

- Managing ourselves – Self-responsibility and behaviour change as prerequisite for mauri ora/wai ora
- Precautionary approach – set precautionary limits where there is 'missing' information
- 'Low hanging fruit'/ easy-wins
- 'Impending disasters'/ where water quality is projected to decline

Drafting target states and setting a pace of change

The Project Team and mana whenua advisors propose the Whaitua Committee think about target setting across three timeframes to create milestones for a range of mana whenua, community values and NOF attributes. While the NPS-FM requires the Natural Resources Plan to specify ten yearly targets for some attributes, the Whaitua Committee's role is in providing mana whenua and community direction on the *pace of change* for improvements in water quality being sought.

Requirements for targets - Targets must be set in accordance with the following NPS-FM clauses. Clause 3.11 (2) in the NPS-FM requires that 'the target attribute state for every value with attributes (except the value human contact) *must be set at or above the baseline state* of that attribute'

Clause 3.11 (3) 'the target attribute state for the value human contact must be set *above* the baseline state of that attribute, unless the baseline state is already within the A band.'

Clause 3.11 (4) despite 2 and 3 above, 'if the baseline state is *below* any national bottom line for that attribute, the *targets attribute state must be set at or above the national bottom line*.'

In accordance with the NPS-FM 2020, these targets must be "ambitious but reasonable (that is, difficult to achieve but not impossible)" (NPS-FM Clause 3.3 (2) (b)). Your deliberations will determine when these targets are able to and should be met. The Project Team will follow the Committee's direction for drafting target states for three timeframes (short, medium and long-term) and primarily be based on the Committee's whāinga and the 100-year vision. Combining these timeframes with the Committee's Whāinga and Vision, these principles can be applied as follows:

Immediate Principle: Stop further degradation of our freshwater. Holding the line. Start making immediate improvements so water quality improves within five years.
Short Timeframe: These short-term targets and outcomes describe the conditions we want to see within the next 10 years.

Generational Principle: Reverse past damage to bring our waterways and ecosystems to a healthy state within a generation. Restoration and significant improvement in a generation. Seeing the results of our actions begun in the immediate timeframe.
Medium Timeframe: These medium-term targets and outcomes describe the conditions we want to see within the next 20 to 30 years.

Long-term Principle: A destination of Te Māuri ora o te Wai for all waterbodies over 100 years as expressed in the vision and outcomes. Note that the Committee desires many objectives to be achieved within a much shorter timeframe than 100 years.
Long Timeframe: The long-term targets and outcomes describe the conditions we want to see within the next 30 to 100 years.

Between the 14 and 23 June workshops, the Project Team will take your prioritisation of the principles above and apply these as draft targets across the catchment areas of the whaitua for a place-based review, deliberation and confirmation on 23 June. Mana whenua advisors, the expert panel's findings and other expert advice will inform the setting of these draft targets.

In your deliberations to agree target states, you should consider if the range of principles referred to above have been adequately taken into account, and that equity, in your view, will be achieved.