

MEMO

TO Whaitua Te Whanganui-a-Tara Committee

FROM Project Team

DATE 24 June 2021

TOPIC Prioritisation principles from Committee Workshop on 14.06.2021

Purpose

The purpose of this memo is to clarify the prioritisation principles developed in the Committee workshop held on Monday 14 June. These principles are draft until confirmation at the 30 June workshop for target setting that will review the principles against targets across the whaitua catchments.

Context – how prioritisation principles will be used

While the Committee has established a long term vision for Te Mana o te Wai and Wai Ora whereby outcomes for all values will ultimately be met, the application of prioritisation principles will see effort and investment prioritised to particular areas over the short and medium term.

The 30 June workshop will focus on whether short and medium term targets are a satisfactory reflection of your prioritisation principles. If not, you will need to think about either:

- Altering the prioritisation principles
- Adjusting the generational target for a particular catchment

And if so, do you need to provide additional direction in the WIP where the level of effort may go beyond existing recommendations?

Draft prioritisation principles

The 14 June workshop worked through the following:

- Where effort would go to 'Hold the line', and which pressures were likely to cause further decline.
- Generational priorities for human health outcomes, linked to mauri, wairua and community connection outcomes.
- Ahua and ecosystem health as a descriptor for the first hierarchy of obligation in Te Mana o te Wai and basis for discussing generational priorities in order to reach Te Mana o te Wai across catchments (also linked to mauri, wairua and community connection outcomes).

'Holding the Line' – The imperative that water quality is maintained and risks of further decline are fully addressed.

In Dec 2020, the Committee established its first principle for water quality targets was to 'hold the line and stop further degradation' and clarified at the workshop that this must be upheld, whatever it takes. An example provided was that if known mitigations hold the line, but further pressures from

climate change or population growth cause decline then additional and stronger mitigations will need to be implemented.

These 'hold the line' targets need to be set at least at baseline state, as also required by the NPS-FM 2020, Clause 3.11 (2).

In the 14 June workshop, the Committee identified the following ***principles to protect against further decline***:

- A. Risk assessment of activities and drivers that may be present in the near future with complete mitigations of the potential impact from:
 - i. Population and development growth pressures
 - ii. Forestry harvest impact on small streams and total sediment
 - iii. Invasive weeds, including in Parangarahu Lakes
 - iv. Any non-linear 'threshold' effects that may be present in the whitua to head off potential 'impending disasters'.
- B. Preventing the risk of declines in the wairua, mental health, community connection and spiritual outcomes derived from waterbodies that their degradation or modification would cause.
- C. Mitigation and adaptation to increasing climate change impacts through time.
- D. Implementation of the precautionary principle in areas where further monitoring, mātauranga, and assessment of Te Mana o te Wai needs to be progressed.

The principle of cost-effectiveness or 'bang for buck' will also apply to the selection of best methods to prevent decline of water quality from the pressures above. This analysis for cost effectiveness will identify and act on 'low hanging fruit' and prioritise mitigations.

Ultimately, the Committee wants to see actions consistent with improving water quality beyond the efforts required to maintain its present state.

Generational prioritisation for improvement - The imperative to pursue water quality improvement to reverse past damage to our waterways and ecosystems and achieve the mauri and heath required for all waterbodies for Te Mana o te Wai.

In the 14 June workshop, the Committee identified the following ***principles for prioritised effort to improve water quality***:

- A. The destination (targets) for mauri, mana, water quality and ecosystem health outcomes should not be different between catchments based on place alone.
 - i. This accepts that the journey (i.e., pace of change and types of actions) will be different in different places, as driven by different pressures and starting point baseline states.
 - ii. This accepts that prioritisation of monitoring is according to the type of outcomes needing improvement and the mitigation methods being implemented in any given catchment. This monitoring will be a combination of general monitoring for reporting against targets and more detailed diagnostic monitoring for assessing the effectiveness of mana whenua, community and council interventions.
 - iii. Outcomes for the first hierarchy of obligation in Te Mana o te Wai incorporate attributes for mauri, mana, ahua and ecosystem health, beyond only NOF measures.

- iv. Targets for attributes that are stressors on these outcomes will be set differently between catchments depending on the requirements to reach the outcome attributes.
- B. Effort for improving water quality should go to the worst affected places first so that improvement is realised within a generation. E.g., 'Forested' catchment areas with generally excellent water quality will have necessary interventions to maintain their state but not receive much additional investment in order to prioritise worse affected catchments.
- i. This is consistent with the aim that Te Mana o te Wai will be met for all waterbodies and current inequity where some place are worse off than others is resolved.
 - ii. This applies to waterbodies where ecosystem values are present i.e., un-piped streams.
 - iii. For currently piped streams it is appreciated that the resources required to achieve daylighting are significant however, opportunities to daylight streams should still be taken where they present themselves and in lifecycle maintenance plans e.g. urban redevelopment, infrastructure and transport projects. Improved outcomes for taonga species should still be sought through pipe and network design e.g. provided improved passage through the network.
 - iv. Additional priority should be given to priority sites of significance for mahinga kai and other mana whenua values, as determined from engagement.
 - v. Places where committed community groups are ready to partner with councils and mana whenua to broaden the actions that can be achieved in the catchment. Where there are mana whenua and community groups to partner in delivery, each should focus on where their best effort can be applied e.g., TA's on infrastructure, communities on restoration of Ahua and ecosystem health.
 - vi. Critical sources should be assessed within catchment for a finer scale analysis for best point of intervention and mitigation.
- C. For human health values in particular, worst affected areas should be addressed first and additional prioritisation given to:
- i. Priority sites of significance for mahinga kai and other mana whenua values, as determined from engagement.
 - ii. Places where committed community groups are ready to partner with councils and mana whenua to broaden the actions that can be achieved in the catchment.
- D. If a recommendation of the Committee applies to all areas, councils or households of the whaitua, then this should be implemented as such, rather than to some catchments only. This follows the principles of the Kawa and each person and place having the same level of responsibility toward freshwater.

MEMO

TO Whaitua Te Whanganui-a-Tara Committee

FROM Project Team

DATE 24 June 2021

TOPIC Draft short term and generational target attribute states

Why we need to set water quality targets

While you have agreed a long-term vision for water quality improvements to be met in 100 years, short and medium-term targets are needed to chart the course. The short and medium-term quality targets will direct the development of the Natural Resources Plan and will set the pace for change. Future consent applications for activities that have water quality impacts will be assessed for their impact on the water quality targets. The targets must be considered alongside prioritisation principles as they will ultimately influence where and how effort for water quality improvements is applied.

Targets

The targets in Tables 1 and 2 below provide a way for testing the prioritisation principles confirmed at the Committee meeting on 14 June. The targets will help you decide if they appropriately direct where the biggest effort should be applied first.

Two sets of targets have been derived to reflect the Committee's two principles of:

1. holding the line in 10 years
2. improvements within 20-30 years.

The *first (short term) target* is the same as the current state. This means that if the targets are met in ten years, water quality will not have declined from current state. As we know, with climate change and population growth, ensuring there is no decline in water quality will require significant effort and changes in the way we do things. The expert panel advice was that water quality would continue to decline in most urban and some rural catchments of the whaitua if current management approaches continued. Setting short-term targets to maintain the current conditions therefore will set in motion a need for significant uptake of your recommendations.

The *second (medium term) target* is where we predict water quality will improve to following full implementation of all your recommendations. That is, these targets do not take into account any additional barriers to implementation of recommendations that may not have been considered. This means that if the recommendations are not implemented for say 50 years, then the targets will not be realised for 50 or more years. This is appropriate, however, as the timeframes for your recommendations have already taken into account barriers to implementation.

Additional notes and observations on the derivation of targets

- The medium-term targets vary across the whitua due to variation in existing issues, opportunities and current water quality state. This means that some waterbodies will be on a faster track to improvement than others. Indeed, some are unlikely to show any detectable improvement in NOF attribute states within a generation. This does not imply reduced effort. These are some of the most degraded waterways and where the most effort will be needed to meet the principle of attending to the worst affected places first.
- Note that there is additional information within the framework of Te Kahui Taiao that will inform target setting to provide for mana whenua attributes for taonga species, mahinga kai and sites of significance to mana whenua. As such, the targets you recommend may be subject to change once further work in these areas has been undertaken.
- The targets have been determined by assessing how well the expert panel scenario mitigations match with your recommendations. This assessment coarsely compared the intended result of your recommendations with the scenario assumptions (e.g., the assumed removal of all cross connections).
- Targets for MCI and *E.coli* (Table 1) and 'stressor' attributes (Table 2) have been derived. Targets are most logically made with outcomes in mind (e.g., MCI for ecosystem health; *E.coli* for human health). Specific stressor targets are difficult to assess for their contribution towards an outcome. Finer scale knowledge is required to better understand the relative importance of each stressor and its contribution of towards achieving targets at the catchment scale, as well as the importance of stressors that are not currently considered as attributes (e.g., habitat, peak and low flows). Sub-catchment stressor identification and management will occur through diagnostic testing and targeted integrated catchment management.
- Targets in estuaries reflect that ecological health improvements will be slow to materialise. This isn't intended to indicate a 'slow track' of implementing recommendations, rather, a characteristic of these environments that they will be slow to overcome the effects of legacy contaminants. This is a challenge to reconcile with the principle of lifting the worst places first, particularly in those estuaries currently in 'poor' (D) state.
- Targets in catchments of the south-western part of the whitua are set to reflect that your recommendations are largely using non-regulatory approaches for rural activities in these catchments and there is little application of regulatory intervention anticipated through the pNRP or national regulations. It is uncertain if your recommendations would lead to sufficient changes in catchment management to achieve an improvement target in a generation.
- Ecological health targets in Mangaroa River and rural streams of Te Awa Kairangi are heavily reliant on expected stock exclusion from regional and national regulation, alongside significant amounts of high standard riparian planting. Targets to seek further improvements would require even more substantial voluntary uptake of riparian planting.
- Targets in the lower valley reaches of Te Awa Kairangi are set to reflect the expected cumulative effects of your recommendations for the forested, rural and urban catchments.
- Targets for Parangarahu Lakes represent a significant shift. This recognises these being taonga to mana whenua and reaching these targets may require greater change than could be reached through your general recommendations.
- The primary contact attribute has only been populated for those spatial areas where there are existing primary contact sites. Primary contact is in the poor state across the whitua.

Water quality target tables

Table 1 below provides the short- and medium-term targets across 18 spatial areas for MCI and *E.coli*.

Table 2 provides the short- and medium-term targets across 18 spatial areas for the NOF 'stressor attributes' and the maintenance or improvement in state predicted.

The first target in each column is the 'short-term' target (S) and the second is the 'generational' target (G). The colours (Red > Orange > Green > Blue) show the maintenance or improvement in the target state for each attribute from the short to generational timeframe.

Table 1: Short (S) and medium/generational (G) term targets for MCI and *E.coli*

Heading	Te Kahui Taiao catchment groups	Ecological target states						Human health target states	
		MCI		Periphyton		Fish		<i>E. coli</i>	
		S	G	S	G	S	G	S	G
Parangārahu Lakes	Catchment streams	C	B	C	B	A	A	E	C
	Parangārahu Lakes	C	A	A	A			C	A
Orongorongo	Orongorongo	A	A	A	A	A	A	A	A
Wainuiomata	Wainuiomata small forested	A	A	A	A	A	A	A	A
	Wainuiomata urban streams	D	D	C	C	A	A	E	D
	Wainuiomata rural streams	C	B	C	C	A	A	D	C
	Wainuiomata Estuary	B	B	A	A			B	B
Wai Tai	Wai Tai (south-eastern coast)	A	A	A	A			A	A
South-west Coast	South-west coast rural streams	C	C	C	C	A	A	E	D
	Makara Estuary	D	D	C	C			C	C
	Wai Tai (south-western coast)	A	A	A	A			A	A
Korokoro	Korokoro Stream	B	A	B	B	A	A	C	B
	Korokoro Estuary	C	B	B	A			C	B
Te Awa Kairangi	Te Awa Kairangi small forested	A	A	A	A	A	A	A	A
	Te Awa Kairangi Forested mainstems	A	A	A	A	A	A	C	A
	Te Awa Kairangi Lower mainstem	B	B	C	C	A	A	D	C
	Te Awa Kairangi Rural mainstems	C	B	C	B	B	B	D	B
	Te Awa Kairangi rural streams	C	B	C	B	B	B	D	B
	Te Awa Kairangi urban streams	C	C	C	C	B	B	E	C
	Waiwhetu Stream	D	C	C	C	A	A	E	C
Te Whanganui-a-Tara	Hutt Estuary	C	B	C	B			C	B
	Te Whanganui-a-Tara (inner harbour)	B	B	A	A			C	B
Wellington urban	Te Whanganui-a-Tara (outer harbour)	B	B	A	A			C	B
	Kaiwharawhara Stream	C	C	C	C	A	A	E	C
	Kaiwharawhara Estuary	C	C	A	A			C	B
	Wellington urban	C	C	C	C	A	A	E	C
	Wai Tai (southern coast)	B	B	A	A			C	C

Table 2: Short (S) and medium/generational (G) term targets for NOF attributes

Heading	Te Kahui Taiao catchment groups	Ecological toxicity						Sediment		Nutrients		Dissolved oxygen		Ecology		Human health												
		Copper		Zinc		Nitrate		Ammonia		Clarity		Deposited		Phosphorus		Periphyton		Dissolved oxygen		MCI		Fish		<i>E. coli</i>		Primary contact		
		S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S
Parangārahu Lakes	Catchment streams	A	A	A	A	A	A	A	A	D	C	D	C	D	C	C	B	A	A	C	B	A	A	E	C			
	Parangārahu Lakes							A	A					C	B	A	A	A	A	C	A			C	A			
Orongorongo	Orongorongo	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Wainuiomata	Wainuiomata small forested	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Wainuiomata urban streams	B	B	B	A	A	A	B	A	D	C	A	A	C	B	C	C	A	A	D	D	A	A	E	D			
	Wainuiomata rural streams	A	A	A	A	A	A	A	A	D	C	A	A	C	B	C	C	A	A	C	B	A	A	D	C			
	Wainuiomata Estuary	A	A	A	A							A	A			A	A			B	B			B	B			
Wai Tai	Wai Tai (south-eastern coast)	A	A	A	A							A	A			A	A			A	A			A	A			
South-west Coast	South-west coast rural streams	A	A	A	A	A	A	A	A	D	C	D	C	D	C	C	C	A	A	C	C	A	A	E	D			
	Makara Estuary	A	A	A	A							C	B			C	C			D	D			C	C			
	Wai Tai (south-western coast)	A	A	A	A							A	A			A	A			A	A			A	A			
Korokoro	Korokoro Stream	A	A	A	A	A	A	A	A	A	A	B	A	B	B	A	A	B	A	A	A	A	A	C	B			
	Korokoro Estuary	A	A	A	A							A	A			B	A			C	B			C	B			
Te Awa Kairangi	Te Awa Kairangi small forested	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Te Awa Kairangi Forested mainstems	A	A	A	A	A	A	A	A	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A	C	A		
	Te Awa Kairangi Lower mainstem	A	A	A	A	A	A	A	A	B	A	A	A	A	C	C	A	A	B	B	A	A	D	C				
	Te Awa Kairangi Rural	A	A	A	A	A	A	A	A	D	C	A	A	B	A	C	B	A	A	C	B	B	B	D	B			
	Te Awa Kairangi rural streams	A	A	A	A	A	A	A	A	B	A	A	A	B	A	C	B	A	A	C	B	B	B	D	B			
	Te Awa Kairangi urban streams	B	A	B	A	A	A	A	A	D	D	TBC		C	C	C	C	A	A	C	C	B	B	E	C			
	Waiwhetu Stream	C	A	D	B	A	A	B	A	A	A	NA		D	C	C	C	B	A	D	C	A	A	E	C			
Te Whanganui-a-Tara	Hutt Estuary	A	A	A	A						B	B			C	B			C	B			C	B				
	Te Whanganui-a-Tara (inner harb	A	A	B	B							D	D			A	A			B	B			C	B			
Wellington urban	Te Whanganui-a-Tara (outer harb	A	A	A	A							D	D			A	A			B	B			C	B			
	Kaiwharawhara Stream	C	C	B	A	B	B	B	B	A	A	A	D	C	C	C	A	A	C	C	A	A	E	C				
	Kaiwharawhara Estuary	A	A	A	A							A	A			A	A			C	C			C	B			
	Wellington urban	D	D	B	A	B	B	B	B	D	C	B	B	D	D	C	C	A	A	C	C	A	A	E	C			
	Wai Tai (southern coast)	A	A	A	A							A	A			A	A			B	B			C	C			

*Te Awa Kairangi rural mainstems short and generation target states are D and C, respectively. This is based in the Mangaroa and Te Marua monitoring site.

Lakes and coastal areas have different attributes to the river attribute named in each column, but are displayed under the most similar attribute heading for simplicity of presentation

Catchments of particular significance to Mana Whenua

Heading	Te Kahui Taiao catchment groups	Ecological target states								Ecological toxicity				Sediment		Nutrients		Dissolved oxygen		Ecology		Human health												
		MCI		Periphyton		Fish		E. coli		Copper	Zinc	Nitrate	Ammonia	Clarity	Deposited	Phosphorus	Periphyton	MCI	Fish	E. coli	Primary contact													
		S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G											
Parangārahu Lakes	Catchment streams	C	B	C	B	A	A	E	C	A	A	A	A	A	A	D	C	D	C	C	B	A	A	C	B	A	A	E	C					
	Parangārahu Lakes	C	A	A	A			C	A				A	A				C	B	A	A	A	A	C	A			C	A					
Korokoro	Korokoro Stream	B	A	B	B	A	A	C	B	A	A	A	A	A	A	A	A	B	A	B	B	A	A	B	A	A	A	A	C	B				
	Korokoro Estuary	C	B	B	A			C	B	A	A	A	A			A	A		B	A			C	B			C	B						
Te Awa Kairangi	Waiwhetu Stream	D	C	C	C	A	A	E	C	C	A	D	B	A	A	B	A	A	A	A	NA	D	C	C	C	B	A	D	C	A	A	E	C	
Wellington urban	Kaiwharawhara Stream	C	C	C	C	A	A	E	C	C	C	B	A	B	B	B	B	B	A	A	A	A	D	C	C	C	A	A	C	C	A	A	E	C
	Kaiwharawhara Estuary	C	C	A	A			C	B	A	A	A	A					A	A			A	A			C	C			C	B			

Questions for group discussion

- What are key mai uta ki tai (source to sea) connections in these catchments?
- Is there a key receiving environment or outcome?
- Do these shifts represent where effort should go?
- What principles describes a change you want to see? What does that prioritise?
- Are there any are places you think 'extra effort' beyond current recommendations should go?
- Are there big unknowns or gaps in information you feel need additional recs? E.g. potentially unaddressed risks/ pressures
- Does this feel like a meaningful (ambitious and reasonable) pace of change for improvement in a generation?

Report-Back

- Are there priorities that would suggest more effort within or for this catchment? What is the principle and what is the outcome desired.
- Where you are comfortable/uncomfortable with these as a generational step, why? What shared and different views did you have?
- Any suggested commentary (recs) about outcomes/ priorities for that catchment of further investigations?

Insights

Targets for Parangārahu Lakes represent a significant shift from current state and will require a commensurate management response, which will require greater change than can be achieved through your general recommendations. Targeted management and interventions will be required. The ambitious target states recognise the lakes as being taonga to mana whenua.

Targets for the other catchments in this group, as with all others except Parangārahu, have been set to reflect the expected result of full implementation of your recommendations.

Stressor targets are set in line with expected result of full implementation of your recommendations. However, the relative importance of different stressors will vary from site to site and catchment to catchment, and some important stressors are not expressed using the attribute framework (eg, minimum flows, peak flow variability, habitat). Finer scale knowledge is required to better understand the relative importance of each stressor and its contribution of towards achieving targets at the catchment scale.

Sub-catchment stressor identification will occur through diagnostic testing, which will then allow targeted integrated catchment management of these wide suite of stressors.

The channelisation of the Kaiwharawhara Estuary means its natural processes no longer operate as they should, contaminants are essentially flushed through the channel and as a result it has A state for most 'water quality' parameters except for enterococci/E. coli. However, the lack of natural habitat contributes to 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.

Heading	Te Kahui Taiao catchment groups	<i>Ngā Taonga Nui a Kiwa</i> Sites of Significance to Mana Whenua	Stream names
Parangārahu Lakes	Catchment streams Parangārahu Lakes	<i>Parangārahu Lakes; (Kohangatera, Kohangapiripiri including catchments)</i> Okakaho Stream Parangārahu (Fitzroy Bay), Orua-poua-nui Parangārahu Lakes, Kohangatera Parangārahu Lakes, Kohangapiripiri	Butterfly Creek Cameron Creek Gollans Stream Okakaho Stream Paiaka Stream
			Lake Kohangatera Lake Kohangapiripiri
Korokoro	Korokoro Stream	<i>Te Korokoro o Te Mana (Korokoro Stream)</i>	Korokoro Stream
	Korokoro Estuary	<i>Te Korokoro o Te Mana (Korokoro Stream mouth)</i>	
Te Awa Kairangi	Waiwhetu Stream	Waiwhetu Stream - Owhiti pā	Waiwhetu Stream
Wellington urban	Kaiwharawhara Stream	<i>Te Manga o Kaiwharawhara (incl. Te Mahanga Korimako Streams)</i>	Kaiwharawhara Stream
	Kaiwharawhara Estuary		

Te Awa Kairangi (not including Waiwhetu)

Heading	Te Kahui Taiao catchment groups	Ecological target states								Ecological toxicity				Sediment		Nutrients		Dissolved oxygen	Ecology		Human health	
		MCI		Periphyton		Fish		E. coli		Copper	Zinc	Nitrate	Ammonia	Clarity	Deposited	Phosphorus	Periphyton		MCI	Fish	E. coli	Primary contact
		S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G		S	G	S	G
Te Awa Kairangi	Te Awa Kairangi small forested	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Te Awa Kairangi Forested mainstems	A	A	A	A	A	A	C	A	A	A	A	A	A	A	B	A	A	A	A	A	A
	Te Awa Kairangi Lower mainstem	B	B	C	C	A	A	D	C	A	A	A	A	B	A	A	A	C	C	A	A	B
	Te Awa Kairangi Rural mainstems	C	B	C	B	B	B	D	B	A	A	A	A	D	C	A	A	B	A	C	B	B
	Te Awa Kairangi rural streams	C	B	C	B	B	B	D	B	A	A	A	A	B	A	A	A	C	B	A	A	C
	Te Awa Kairangi urban streams	C	C	C	C	B	B	E	C	B	A	B	A	A	A	A	A	D	D	TBC	C	C
	Hutt Estuary	C	B	C	B			C	B	A	A	A	A			B	B		C	B		C
Te Whanganui-a-Tara	Te Whanganui-a-Tara (inner harbour)	B	B	A	A			C	B	A	A	B	B			D	D		A	A		B
Te Whanganui-a-Tara (outer harbour)	B	B	A	A			C	B	A	A	A	A			D	D		A	A		B	

Questions for group discussion

- What are key mai uta ki tai (source to sea) connections in these catchments?
- Is there a key receiving environment or outcome?
- Do these shifts represent where effort should go?
- What principles describes a change you want to see? What does that prioritise?
- Are there any are places you think 'extra effort' beyond current recommendations should go?
- Are there big unknowns or gaps in information you feel need additional recs? E.g. potentially unaddressed risks/ pressures
- Does this feel like a meaningful (ambitious and reasonable) pace of change for improvement in a generation?

Report-Back

- Are there priorities that would suggest more effort within or for this catchment? What is the principle and what is the outcome desired.
- Where you are comfortable/uncomfortable with these as a generational step, why? What shared and different views did you have?
- Any suggested commentary (recs) about outcomes/ priorities for that catchment of further investigations?

Insights

Some predominantly forested mainstem catchments include areas of rural land use that are having an impact upon conditions for human health. Expansion of these activities is a risk unless thoroughly managed. Improving rural land use practices in concert with rural WIP recommendations should result in the generational targets being met.

Ecological health targets in Mangaroa River and rural streams of Te Awa Kairangi are heavily reliant on expected stock exclusion from regional and national regulation, alongside significant amounts of high standard riparian planting. Targets to seek further improvements would require even more substantial voluntary uptake of riparian planting.

Within the urban streams, there are likely to be some streams in better condition and others in worse condition than indicated in the table above. Although we don't have high resolution data to identify where stream states differ and express differential targets in this exercise, the targets provide a clear justification for implementation of your urban recommendations.

Some of the urban streams in the Hutt Valley are amongst the most degraded waterways in the Whaitua and where the most effort will be needed to bring them to these targets. However, some of these streams are unlikely to show any detectable improvement in NOF attribute states within a generation as the opportunities to improve may require large-scale urban redevelopment projects.

Targets in the lower valley reaches of Te Awa Kairangi are set to reflect the expected cumulative effects of your recommendations for the forested, rural and urban catchments. The urban management is expected to be particularly influential in achieving the targets for Te Awa Kairangi lower mainstem.

Stressor targets are set in line with expected result of full implementation of your recommendations. However, the relative importance of different stressors will vary from site to site and catchment to catchment, and some important stressors are not expressed using the attribute framework (eg, minimum flows, peak flow variability, habitat). Finer scale knowledge is required to better understand the relative importance of each stressor and its contribution of towards achieving targets at the catchment scale.

Sub-catchment stressor identification will occur through diagnostic testing, which will then allow targeted integrated catchment management of these wide suite of stressors.

Heading	Te Kahui Taiao catchment groups	<i>Ngā Taonga Nui a Kiwa</i> Sites of Significance to Mana Whenua	Stream names	
Te Awa Kairangi	Te Awa Kairangi small forested		Bull Stream Chilly Stream Deadwood Stream Frances Stream Little Akatarawa River Blaikie Stream Cooleys Stream Huia Stream Mahers Stream Narrow Neck Stream Climie Creek Redington Stream Rimutaka Stream	Kerekere Stream Kororipo Stream Phillips Stream Pukeruru Stream Putaputa Stream Quoin Stream Renata Stream Dopers Creek Paddys Creek Titi Stream Wainui Stream Wedgery Creek
	Te Awa Kairangi Forested mainstems	<i>Te Awa Kairangi (Hutt River)</i>	Akatarawa River Akatarawa River West Eastern Hutt river Hutt River	Pakuratahi River Western Hutt River Whakatikei River
	Te Awa Kairangi Lower mainstem	<i>Te Awa Kairangi (Hutt River)</i> Te Awa Kairanga/Hutt River - Maraenuku pā Te Awa Kairanga/Hutt River - Motutawa pā Te Awa Kairangi (Hutt River mouth)	Te Awa Kairangi downstream of Te Marua or other appropriate point? Confluence w Akatarawa?	
	Te Awa Kairangi Rural mainstems		Mangaroa River	
	Te Awa Kairangi rural streams		Benge Creek Black Stream Colletts Stream Farm Creek	Kaitoke Stream Macaskill Lakes Puffer Creek Rimutaka Stream
	Te Awa Kairangi urban streams		Hulls Creek Mawaihakona Stream Pinehaven	Speedys Stream Stokes Valley Te Mome Stream
	Hutt Estuary			
Te Whanganui-a-Tara	Te Whanganui-a-Tara (inner harbour)	<i>Te Whanganui-ā-Tara (Wellington Harbour)</i> Te Aro pā Pito-one pā (Petone foreshore)	Te Whanganui-a-Tara Whairepo Lagoon Queens Wharf	
	Te Whanganui-a-Tara (outer harbour)	Te Korokoro o Te Mana (Korokoro Stream mouth) Hikoikoi pā (Petone foreshore) Te Awa Kairangi (Hutt River mouth)	Oriental Bay Evans Bay Eastbourne	

Wai Tai (South-eastern coast), Wainuiomata and Orongorongo

Heading	Te Kahui Taiao catchment groups	Ecological target states								Ecological toxicity				Sediment		Nutrients		Dissolved oxygen	Ecology		Human health		
		MCI		Periphyton		Fish		E. coli		Copper	Zinc	Nitrate	Ammonia	Clarity	Deposited	Phosphorus	Periphyton		MCI	Fish	E. coli	Primary contact	
		S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G		S	G	S	G	S
Orongorongo	Orongorongo	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Wainuiomata	Wainuiomata small forested	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	Wainuiomata urban streams	D	D	C	C	A	A	E	D	B	B	B	A	A	A	A	D	C	A	A	D	D	
	Wainuiomata rural streams	C	B	C	C	A	A	D	C	A	A	A	A	D	C	A	A	C	B	C	C	A	A
	Wainuiomata Estuary	B	B	A	A			B	B	A	A					A	A	B	B			B	B
Wai Tai	Wai Tai (south-eastern coast)	A	A	A	A			A	A	A	A					A	A			A	A		

Questions for group discussion

- What are key mai uta ki tai (source to sea) connections in these catchments?
- Is there a key receiving environment or outcome?
- Do these shifts represent where effort should go?
- What principles describes a change you want to see? What does that prioritise?
- Are there any are places you think 'extra effort' beyond current recommendations should go?
- Are there big unknowns or gaps in information you feel need additional recs? E.g. potentially unaddressed risks/ pressures
- Does this feel like a meaningful (ambitious and reasonable) pace of change for improvement in a generation?

Report-Back

- Are there priorities that would suggest more effort within or for this catchment? What is the principle and what is the outcome desired.
- Where you are comfortable/uncomfortable with these as a generational step, why? What shared and different views did you have?
- Any suggested commentary (recs) about outcomes/ priorities for that catchment of further investigations?

Insights

Within the urban streams, there are likely to be some streams in better condition and others in worse condition than indicated in the table above. Although we don't have high resolution data to identify where stream states differ and express differential targets in this exercise, the targets provide a clear justification for implementation of your urban recommendations.

Some urban streams, such as Black Creek, are amongst the most degraded waterways in the Whaitua and where the most effort will be needed to bring them to these targets. However, some are unlikely to show any detectable improvement in NOF attribute states within a generation as the opportunities to improve may require large-scale urban redevelopment projects.

Targets in estuaries reflect that ecological health improvements will be slow to materialise. This isn't intended to indicate a 'slow track' of implementing recommendations, rather, a characteristic of these environments that they will be slow to overcome the effects of legacy contaminants.

There are some generally excellent condition places in this group. These will have necessary interventions to maintain their state but not receive much additional investment.

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.

Stressor targets are set in line with expected result of full implementation of your recommendations. However, the relative importance of different stressors will vary from site to site and catchment to catchment, and some important stressors are not expressed using the attribute framework (eg, minimum flows, peak flow variability, habitat). Finer scale knowledge is required to better understand the relative importance of each stressor and its contribution of towards achieving targets at the catchment scale.

Sub-catchment stressor identification will occur through diagnostic testing, which will then allow targeted integrated catchment management of these wide suite of stressors.

Heading	Te Kahui Taiao catchment groups	<i>Ngā Taonga Nui a Kiwa</i> Sites of Significance to Mana Whenua	Stream names	
Orongorongo	Orongorongo	Orongorongo River mouth	Big Huia Creek Boulder Creek Browns Stream Goat Stream Greens Stream Little Huia creek Matai Stream Matthews Stream Nettle Stream	North Boulder Creek Orongorongo River Peak Stream Puketaha Creek Red Rock Stream Telephone Creek Turere Stream Whakanui Creek Wootton Stream
Wainuiomata	Wainuiomata small forested		Catchpool Stream (part) George Creek Graces Stream Mckerrow Stream Sinclair Creek Skull Gully Stream	Thistle Stream Wainuiomata River East Branch Wainuiomata River West Branch
	Wainuiomata urban streams		Black Creek	
	Wainuiomata rural streams	Wainuiomata River mouth and foreshore	Catchpool Stream (part) Crowthers Creek Karakā Stream Nikau Creek Plumbago Stream Scholl Creek	Skerrets Creek Sledge Track Creek Wainuiomata River Wainuiomata Stream Wainuiomataiti Stream
	Wainuiomata Estuary	Wainuiomata River mouth and foreshore	Wainuiomata Estuary	
Wai Tai	Wai Tai (south-eastern coast)	Raukawa Moana (Cook Strait) Wainuiomata River mouth and foreshore Orongorongo River mouth Parangārahu (Fitzroy Bay), Orua-poua-nui	Southern coast to the east of the eastern harbour entrance	

Wellington urban (including Kaiwharawhara)

Heading	Te Kahui Taiao catchment groups	Ecological target states						Human health target states		Ecological toxicity				Sediment		Nutrients		Dissolved oxygen	Ecology		Human health											
		MCI		Periphyton		Fish		E. coli		Copper	Zinc	Nitrate	Ammonia	Clarity	Deposited	Phosphorus	Periphyton		MCI	Fish	E. coli	Primary contact										
		S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G		S	G	S	G	S	G								
Te Whanganui-a-Tara	Te Whanganui-a-Tara (inner harbour)	B	B	A	A			C	B	A	A	B	B					D	D	A	A	B	B	C	B							
	Te Whanganui-a-Tara (outer harbour)	B	B	A	A			C	B	A	A	A	A					D	D	A	A	B	B	C	B							
Wellington urban	Kaiwharawhara Stream	C	C	C	C	A	A	E	C	C	C	B	A	B	B	B	A	A	A	D	C	C	C	A	A	C	C	A	A	E	C	
	Kaiwharawhara Estuary	C	C	A	A			C	B	A	A	A	A					A	A		A	A	C	C			C	B				
	Wellington urban	C	C	C	C	A	A	E	C	D	D	B	A	B	B	B	D	C	B	B	D	D	C	C	A	A	C	C	A	A	E	C
	Wai Tai (southern coast)	B	B	A	A			C	C	A	A	A	A					A	A		A	A	B	B			C	C				

Questions for group discussion

- What are key mai uta ki tai (source to sea) connections in these catchments?
- Is there a key receiving environment or outcome?
- Do these shifts represent where effort should go?
- What principles describes a change you want to see? What does that prioritise?
- Are there any are places you think 'extra effort' beyond current recommendations should go?
- Are there big unknowns or gaps in information you feel need additional recs? E.g. potentially unaddressed risks/ pressures
- Does this feel like a meaningful (ambitious and reasonable) pace of change for improvement in a generation?

Report-Back

- Are there priorities that would suggest more effort within or for this catchment? What is the principle and what is the outcome desired.
- Where you are comfortable/uncomfortable with these as a generational step, why? What shared and different views did you have?
- Any suggested commentary (recs) about outcomes/ priorities for that catchment of further investigations?

Insights

Within the urban streams, there are likely to be some streams in better condition and others in worse condition than indicated in the table above. Although we don't have high resolution data to identify where stream states differ and express differential targets in this exercise, the targets provide a clear justification for implementation of your urban recommendations.

Some of the urban streams in Wellington are amongst the most degraded waterways in the Whaitua and where the most effort will be needed to bring them to these targets. However, some of these streams are unlikely to show any detectable improvement in NOF attribute states within a generation as the opportunities to improve may require large-scale urban redevelopment projects.

Targets in estuaries and Te Whanganui-a-Tara reflect that ecological health improvements will be slow to materialise. This isn't intended to indicate a 'slow track' of implementing recommendations, rather, a characteristic of these environments that they will be slow to overcome the effects of legacy contaminants.

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.

The channelisation of the Kaiwharawhara Estuary means its natural processes no longer operate as they should, contaminants are essentially flushed through the channel and as a result it has A state for most 'water quality' parameters except for enterococci/E. coli. However, the lack of natural habitat contributes to 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.

Stressor targets are set in line with expected result of full implementation of your recommendations. However, the relative importance of different stressors will vary from site to site and catchment to catchment, and some important stressors are not expressed using the attribute framework (eg, minimum flows, peak flow variability, habitat). Finer scale knowledge is required to better understand the relative importance of each stressor and its contribution of towards achieving targets at the catchment scale.

Sub-catchment stressor identification will occur through diagnostic testing, which will then allow targeted integrated catchment management of these wide suite of stressors.

Heading	Te Kahui Taiao catchment groups	<i>Ngā Taonga Nui a Kiwa</i> Sites of Significance to Mana Whenua	Stream names
Te Whanganui-a-Tara	Te Whanganui-a-Tara (inner harbour)	<i>Te Whanganui-ā-Tara (Wellington Harbour)</i>	Te Whanganui-a-Tara
	Te Whanganui-a-Tara (outer harbour)	Te Aro pā Pito-one pā (Petone foreshore) Te Korokoro o Te Mana (Korokoro Stream mouth) Hikoikoi pā (Petone foreshore) Te Awa Kairangi (Hutt River mouth)	Whairepo Lagoon Queens Wharf Oriental Bay Evans Bay Eastbourne
Wellington urban	Kaiwharawhara Stream	<i>Te Manga o Kaiwharawhara (incl. Te Mahanga Korimako Streams)</i>	Kaiwharawhara Stream
	Kaiwharawhara Estuary		
	Wellington urban	<i>Raukawa Moana (Cook Strait)</i> <i>Te Whanganui-ā-Tara (Wellington Harbour)</i> Hue te Taka (Wellington south coast) Korohiwa (East Harbour coast) Tapu te Ranga - Owhiro – Haewai Te Aro pā Te Raekaihau Point reef	Horokiwi Karori Stream Kumutoto Owhiro Stream Pipitea Silver Stream Tiakiwai Waimapihi Waipiro
	Wai Tai (southern coast)	Raukawa Moana (Cook Strait) Tapu te Ranga - Owhiro – Haewai Te Raekaihau Point reef Hue te Taka (Wellington south coast) Te Tangihanga-a-Kupe (Barrett Reef)	Southern coast from around red rocks to the western harbour entrance Karori Stream mouth Owhiro Estuary Island Bay and Taputeranga Marine Reserve Lyll Bay Moa Point

South-western coast, Makara, Ohariu and Wai Tai

Heading	Te Kahui Taiao catchment groups	Ecological target states				Human health target states		Ecological toxicity				Sediment		Nutrients		Dissolved oxygen	Ecology		Human health										
		MCI		Periphyton		Fish		<i>E. coli</i>		Copper	Zinc	Nitrate	Ammonia	Clarity	Deposited		Phosphorus	Periphyton	MCI	Fish	<i>E. coli</i>	Primary contact							
		S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G						
South-west Coast	South-west coast rural streams	C	C	C	C	A	A	E	D	A	A	A	A	A	A	D	C	D	C	C	C	A	A	C	C	A	A	E	D
	Makara Estuary	D	D	C	C			C	C	A	A	A	A			C	B			C	C			D	D			C	C
	Wai Tai (south-western coast)	A	A	A	A			A	A	A	A	A	A			A	A			A	A			A	A			A	A

Questions for group discussion

- What are key mai uta ki tai (source to sea) connections in these catchments?
- Is there a key receiving environment or outcome?
- Do these shifts represent where effort should go?
- What principles describes a change you want to see? What does that prioritise?
- Are there any are places you think 'extra effort' beyond current recommendations should go?
- Are there big unknowns or gaps in information you feel need additional recs? E.g. potentially unaddressed risks/ pressures
- Does this feel like a meaningful (ambitious and reasonable) pace of change for improvement in a generation?

Report-Back

- Are there priorities that would suggest more effort within or for this catchment? What is the principle and what is the outcome desired.
- Where you are comfortable/uncomfortable with these as a generational step, why? What shared and different views did you have?
- Any suggested commentary (recs) about outcomes/ priorities for that catchment of further investigations?

Insights

Targets in catchments of the south-western part of the whitua are set to reflect that your recommendations are largely using non-regulatory approaches for rural activities in these catchments and there is little application of regulatory intervention anticipated through the pNRP or national regulations. It is uncertain if your recommendations would lead to sufficient changes in catchment management to achieve an improvement target in a generation.

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.

Targets in estuaries reflect that ecological health improvements will be slow to materialise. This isn't intended to indicate a 'slow track' of implementing recommendations, rather, a characteristic of these environments that they will be slow to overcome the effects of legacy contaminants.

Stressor targets are set in line with expected result of full implementation of your recommendations. However, the relative importance of different stressors will vary from site to site and catchment to catchment, and some important stressors are not expressed using the attribute framework (eg, minimum flows, peak flow variability, habitat). Finer scale knowledge is required to better understand the relative importance of each stressor and its contribution of towards achieving targets at the catchment scale.

Sub-catchment stressor identification will occur through diagnostic testing, which will then allow targeted integrated catchment management of these wide suite of stressors.

Heading	Te Kahui Taiao catchment groups	<i>Ngā Taonga Nui a Kiwa</i> Sites of Significance to Mana Whenua	Stream names
South-west Coast	South-west coast rural streams	Kie Kie/Kia Kia (Ngutu Kaka pā) (Pipinui Point) Ohariu - Wharehou Bay Oterongo Bay Te Ika a Maru - Ohau Bay Te Rimurapa - Pariwhero (Sinclair Head - Red Rocks) Waiariki Stream mouth and coast	Makara Stream Mill Creek North Makara Stream Ohariu Stream Opau Stream Oteranga Stream Waiariki Stream Waipapa Stream
	Makara Estuary		Makara Estuary
	Wai Tai (south-western coast)	<i>Raukawa Moana (Cook Strait)</i> Kie Kie/Kia Kia (Ngutu Kaka pā) (Pipinui Point) Ohariu - Wharehou Bay Oterongo Bay Te Ika a Maru - Ohau Bay Te Rimurapa - Pariwhero (Sinclair Head - Red Rocks) Waiariki Stream mouth and coast	South-western coast to the west and north of roughly red rocks areas

Wai Tai

Heading	Te Kahui Taiao catchment groups	Ecological target states						Human health target states		Ecological toxicity				Sediment		Nutrients		Dissolved oxygen		Ecology		Human health			
		MCI		Periphyton		Fish		<i>E. coli</i>		Copper	Zinc	Nitrate	Ammonia	Clarity	Deposited	Phosphorus	Periphyton	MCI	Fish	<i>E. coli</i>	Primary contact				
		S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G		
Wainuiomata	Wainuiomata Estuary	B	B	A	A			B	B	A	A				A	A		A	A		B	B		B	B
Wai Tai	Wai Tai (south-eastern coast)	A	A	A	A			A	A	A	A				A	A		A	A		A	A		A	A
South-west Coast	Makara Estuary	D	D	C	C			C	C	A	A				C	B		C	C		D	D		C	C
	Wai Tai (south-western coast)	A	A	A	A			A	A	A	A				A	A		A	A		A	A		A	A
Korokoro	Korokoro Estuary	C	B	B	A			C	B	A	A				A	A		B	A		C	B		C	B
Te Awa Kairangi	Hutt Estuary	C	B	C	B			C	B	A	A				B	B		C	B		C	B		C	B
Te Whanganui-a-Tara	Te Whanganui-a-Tara (inner harbour)	B	B	A	A			C	B	A	A				B	B		A	A		B	B		C	B
	Te Whanganui-a-Tara (outer harbour)	B	B	A	A			C	B	A	A				A	A		A	A		B	B		C	B
Wellington urban	Kaiwharawhara Estuary	C	C	A	A			C	B	A	A				A	A		A	A		C	C		C	B
	Wai Tai (southern coast)	B	B	A	A			C	C	A	A				A	A		A	A		B	B		C	C

Questions for group discussion

- What are key mai uta ki tai (source to sea) connections in these catchments?
- Is there a key receiving environment or outcome?
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Report-Back

- Are there priorities that would suggest more effort within or for this catchment? What is the principle and what is the outcome desired.
- Where you are comfortable/uncomfortable with these as a generational step, why? What shared and different views did you have?
- Any suggested commentary (recs) about outcomes/ priorities for that catchment of further investigations?

Insights

The channelisation of the Kaiwharawhara Estuary means its natural processes no longer operate as they should, contaminants are essentially flushed through the channel and as a result it has A state for most 'water quality' parameters except for enterococci/*E. coli*. However, the lack of natural habitat contributes to 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.

Targets in estuaries and Te Whanganui-a-Tara reflect that ecological health improvements will be slow to materialise. This isn't intended to indicate a 'slow track' of implementing recommendations, rather, a characteristic of these environments that they will be slow to overcome the effects of legacy contaminants.

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Heading	Te Kahui Taiao catchment groups	<i>Ngā Taonga Nui a Kiwa</i> Sites of Significance to Mana Whenua	Names
Wainuiomata	Wainuiomata Estuary	Wainuiomata River mouth and foreshore	Wainuiomata Estuary
Wai Tai	Wai Tai (south-eastern coast)	Raukawa Moana (Cook Strait) Wainuiomata River mouth and foreshore Orongorongo River mouth Parangārahu (Fitzroy Bay), Orua-poua-nui	Southern coast to the east of the eastern harbour entrance
South-west Coast	Makara Estuary		Makara Estuary
	Wai Tai (south-western coast)	<i>Raukawa Moana (Cook Strait)</i> Kie Kie/Kia Kia (Ngutu Kaka pā) (Pipinui Point) Ohariu - Wharehou Bay Oterongo Bay Te Ika a Maru - Ohau Bay Te Rimurapa - Pariwhero (Sinclair Head - Red Rocks) Waiariki Stream mouth and coast	South-western coast to the west and north of roughly red rocks areas
Korokoro	Korokoro Estuary	<i>Te Korokoro o Te Mana (Korokoro Stream)</i> Te Korokoro o Te Mana (Korokoro Stream mouth)	
Te Awa Kairangi	Hutt Estuary		
Te Whanganui-a-Tara	Te Whanganui-a-Tara (inner harbour)	<i>Te Whanganui-ā-Tara (Wellington Harbour)</i>	Te Whanganui-a-Tara
	Te Whanganui-a-Tara (outer harbour)	Te Aro pā Pito-one pā (Petone foreshore) Te Korokoro o Te Mana (Korokoro Stream mouth) Hikoikoi pā (Petone foreshore) Te Awa Kairangi (Hutt River mouth)	Whairepo Lagoon Queens Wharf Oriental Bay Evans Bay Eastbourne
Wellington urban	Kaiwharawhara Estuary	<i>Te Manga o Kaiwharawhara (incl. Te Mahanga Korimako Streams)</i>	
	Wai Tai (southern coast)	Raukawa Moana (Cook Strait) Tapu te Ranga - Owhiro – Haewai Te Raekaihau Point reef Hue te Taka (Wellington south coast) Te Tangihanga-a-Kupe (Barrett Reef)	Southern coast from around red rocks to the western harbour entrance Karori Stream mouth Owhiro Estuary Island Bay and Taputeranga Marine Reserve Lyll Bay Moa Point

Urban streams together

Heading	Te Kahui Taiao catchment groups	Ecological target states						Human health target states		Ecological toxicity				Sediment		Nutrients		Dissolved oxygen	Ecology		Human health													
		MCI		Periphyton		Fish		E. coli		Copper	Zinc	Nitrate	Ammonia	Clarity	Deposited	Phosphorus	Periphyton		MCI	Fish	E. coli	Primary contact												
		S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G											
Wainuiomata	Wainuiomata urban streams	D	D	C	C	A	A	E	D	B	B	B	A	A	A	B	A	D	C	A	A	C	B	C	C	A	A	D	D	A	A	E	D	
	Te Awa Kairangi Lower mainstem	B	B	C	C	A	A	D	C	A	A	A	A	A	A	B	A	A	A	A	A	C	C	A	A	B	B	A	A	D	C			
Te Awa Kairangi	Te Awa Kairangi urban streams	C	C	C	C	B	B	E	C	B	A	B	A	A	A	D	D	TBC	C	C	C	C	A	A	C	C	B	B	E	C				
	Waiwhetu Stream	D	C	C	C	A	A	E	C	C	A	D	B	A	A	B	A	A	A	NA	D	C	C	C	B	A	D	C	A	A	E	C		
Wellington urban	Kaiwharawhara Stream	C	C	C	C	A	A	E	C	C	C	B	A	B	B	B	B	B	A	A	A	D	C	C	C	A	A	C	C	A	A	E	C	
	Wellington urban	C	C	C	C	A	A	E	C	D	D	B	A	B	B	B	B	D	C	B	B	D	D	C	C	A	A	C	C	A	A	E	C	

Questions for group discussion

- What are key mai uta ki tai (source to sea) connections in these catchments?
- Is there a key receiving environment or outcome?
- Do these shifts represent where effort should go?
- What principles describes a change you want to see? What does that prioritise?
- Are there any are places you think 'extra effort' beyond current recommendations should go?
- Are there big unknowns or gaps in information you feel need additional recs? E.g. potentially unaddressed risks/ pressures
- Does this feel like a meaningful (ambitious and reasonable) pace of change for improvement in a generation?

Insights

Within the urban streams, there are likely to be some streams in better condition and others in worse condition than indicated in the table above. Although we don't have high resolution data to identify where stream states differ and express differential targets in this exercise, the targets provide a clear justification for implementation of your urban recommendations.

Some of the urban streams are amongst the most degraded waterways in the Whaitua and where the most effort will be needed to bring them to these targets. However, some of these streams are unlikely to show any detectable improvement in NOF attribute states within a generation as the opportunities to improve may require large-scale urban redevelopment projects.

Stressor targets are set in line with expected result of full implementation of your recommendations. However, the relative importance of different stressors will vary from site to site and catchment to catchment, and some important stressors are not expressed using the attribute framework (eg, minimum flows, peak flow variability, habitat). Finer scale knowledge is required to better understand the relative importance of each stressor and its contribution of towards achieving targets at the catchment scale.

Sub-catchment stressor identification will occur through diagnostic testing, which will then allow targeted integrated catchment management of these wide suite of stressors.

Report-Back

- Are there priorities that would suggest more effort within or for this catchment? What is the principle and what is the outcome desired.
- Where you are comfortable/uncomfortable with these as a generational step, why? What shared and different views did you have?
- Any suggested commentary (recs) about outcomes/ priorities for that catchment of further investigations?

Heading	Te Kahui Taiao catchment groups	<i>Ngā Taonga Nui a Kiwa</i> Sites of Significance to Mana Whenua	Stream names
Wainuiomata	Wainuiomata urban streams		Black Creek
Te Awa Kairangi	Te Awa Kairangi Lower mainstem	<i>Te Awa Kairangi (Hutt River)</i> Te Awa Kairanga/Hutt River - Maraenuku pā Te Awa Kairanga/Hutt River - Motutawa pā Te Awa Kairangi (Hutt River mouth)	Te Awa Kairangi downstream of Te Marua or other appropriate point? Confluence w Akatarawa?
	Te Awa Kairangi urban streams		Hulls Creek Mawaihakona Stream Pinehaven Speedys Stream Stokes Valley Te Mome Stream
	Waiwhetu Stream	Waiwhetu Stream - Owhiti pā	Waiwhetu Stream
Wellington urban	Kaiwharawhara Stream	<i>Te Manga o Kaiwharawhara (incl. Te Mahanga Korimako Streams)</i>	Kaiwharawhara Stream
	Wellington urban	<i>Raukawa Moana (Cook Strait)</i> <i>Te Whanganui-ā-Tara (Wellington Harbour)</i> Hue te Taka (Wellington south coast) Korohiwa (East Harbour coast) Tapu te Ranga - Owhiro – Haewai Te Aro pā Te Raekaihau Point reef	Horokiwi Karori Stream Kumutoto Owhiro Stream Pipitea Silver Stream Tiakiwai Waimapihi Waipiro