Ūawa Catchment Working Group

Development of the Action Plan

11 December 2024

1.0 Draft Actions

At our last hui we brainstormed potential actions for the action plan. I have put these in the attached table and identified what attributes or environmental outcomes they might relate to.

The main task we have for this hui is to work through the actions and provide a bit more detail about what the action might involve and how it could be prioritised and implemented in the Ūawa Catchment.

There are also a set of actions that staff recommend the group consider whether they might be appropriate in the Ūawa Catchment Plan – these types of actions have been found to be particularly effective or useful to help manage the three big water quality issues for the Ūawa Catchment – E.coli, sediment and ecosystem health. We would like you to work through and consider these actions and whether they are something that should be included in the Ūawa Action Plan.

Finally we would like you to consider the **priorities** for actions. And which of these actions are your priorities for the first 5 years of implementation and which would be priorities for the second 5-year period.

Draft Ūawa Catchment Plan – Action Plan

The following actions were identified at the last hui. I have put them in a table for us to keep working on.

Action	Problem this Action Will Address Likely effectiveness	Detailed explanation/discussion	Priority Areas
Cross – Catchment Actions			
1. Increased compliance monitoring and feedback loop to resource users and a mindset of working towards shared goals	• Sediment & Woody debris – **medium value measure**	Council role – but want to see more pro-active/solutions focussed complaince approach – get the environmental outcome, don't just focus on catching people doing wrong.	
2. Rangahau - Collate the stories – identify and fill the gaps of pakeke stories	• Wai tapu • Whakapapa • Taonga Tuku Iho		
3. More support for hapū-led monitoring/planting/ restoration/ waste management projects eg Kaiaua Hill, Tatarahake ridge	• Kaitiekitanga • Wairua • Mauri • Whakapapa • Taonga Tuku Iho • Whanaungatanga		
4. Pest control	• E.coli • Ecosystem health • Threatened species • Mahinga Kai	Riverine species have been declining due to predator pressure. Predator control projects could help bring their numbers back up. Raukumara Pae	

Action	Problem this Action Will Address Likely effectiveness	Detailed explanation/discussion	Priority Areas
	• Swimming – moderate value measure	Maunga could be expanded to include other lands. Deer and goat poo may be a significant source of E.coli. Deer and goats also deplete the ground cover and mid- tier of native forests – increasing erosion and sedimentation.	
5. Restoration of wetlands – identify easy win areas	• E.coli & Sediment – **moderate value measure** • Fish • Mahinga Kai • Threatened Species – **high value measure**		
6. Identify community groups and bring together to collaborate around ideas	• Kaitiekitanga • Whanaungatanga		
7. Eradicate wilding pines	• Ecosystem health • Threatened species – **not clear how significant**		
8. Increased setbacks from waterways for farming and forestry	• E.coli • Sediment • Ecosystem health – **high value measure**	Optimal setback widths would vary by activity.	

Action	Problem this Action Will Address Likely effectiveness	Detailed explanation/discussion	Priority Areas
9. Support catchment groups to get funding	• Kaitiekitanga • Whanaungatanga		
10. Interactive dashboard of shared data and stories	• Kaitiekitanga • Whanaungatanga		
Farming Areas and Rural Communities			
11. Proactive management of riverbank planting (poplars and willows) to retain bank stablisation outcomes	• Sediment – **moderate value measure** • Ecosystem health – **moderate value measure**		
12. Stock exclusion – more emphasis on fencing and planting to keep stock out	• Sediment – **moderate value measure** • Ecosystem health – **high value measure** • E.coli – **high value measure**	No longer mandated in any national regulation but I have included a map of the low slope land so people can see where it applied. Are stock exclusion requirements in the TRMP where intensive landuse (breakfeeding, dairy, cattle or deer on irrigated land) occurs. Low slope land is the main area where stock exclusion is relatively easy and cost effective – but many landowners lost a lot of fences in the 2023 storms. Stock exclusion with	

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		temporary fencing may be more realistic – but would be best combined with some erosion protection and protection from debris flow events. Outside of the "easier to fence" areas stock exclusion on the Ūawa catchment plan area could be most useful upstream of mahinga kai and swimming spots and around wetlands - Exclusion of cattle from wetlands is the most important to prevent their destruction. Light sheep grazing is generally not a problem.	
13. Reduce fertiliser runoff to rivers	• Ecosystem health – **moderate value measure**		
14. Better management of cultivated land to reduce sediment runoff to rivers	• Sediment – **moderate value measure** • Ecosystem health – **high value measure**		
15. Improving fish passage in drains	• Ecosystem health – **high value measure**		
16. Workshops in rural communities around	• Supports most attributes	Keep to helping farmers get to grips with how to implement best practice,	

Action	Problem this Action Will Address Likely effectiveness	Detailed explanation/discussion	Priority Areas
freshwater revitalisation		do good farm plans and generally see how things work. A good way to bring the more skeptical on board as well.	
17. Better management of drains so that fish are not stranded/killed during drain maintenance	• Ecosystem health – **high value measure**		
18. Fit for purpose culverts for intense water flows	• Sediment – **moderate value measure** • Ecosystem health – **moderate value measure**		
19. Stop large scale spraying of gorse/kānuka/mānuka	• Sediment – **moderate value measure**		
20. Better collaboration between Waka Kotahi and GDC on location and management of temporary and permanent spoil sites	• Sediment – **moderate value measure**		
21. Collaboration with neighbours – pest control, fencing	• Sediment • E.coli • Ecosystem health – **moderate value measure**		

Action	Problem this Action Will Address Likely effectiveness	Detailed explanation/discussion	Priority Areas
22. Sediment dams terraced in fragile terrain	• Sediment – **moderate value measure**	Constructed wetlands can be designed to treat particular nutrients and reduce E.coli levels and sediment dams will reduce sediment runoff.	
Forestry Areas			
23. Increased sharing of monitoring data collected through resource consent requirements – eg eDNA test results	• Ecosystem health – **moderate value measure**		
24. Review and ensure good long term management of older skid sites and sediment traps	• Sediment – **moderate value measure**		
25. Actively manage harvested land during transition through the window of vulnerability, including through discharge permits	• Sediment – **moderate value measure**		
26. Debris nets – process and rules to installation	• Sediment – **moderate value measure**		

Action	Problem this Action Will Address Likely effectiveness	Detailed explanation/discussion	Priority Areas
27. Increased monitoring at same cost to Council (ie add requirements to consents)	• Sediment • E.coli • Ecosystem health – **moderate value measure**		
28. Forestry plantations utilise 100% of the tree – community firewood	• Sediment – **moderate value measure**		
Settlement Areas			
29. Improving spouting systems and rainwater collection	• Drinking water – **significant measure**		
30. Getting rid of long drops	• E.coli – **moderate value measure**		
31. Education re water efficiency	• Drinking water – **significant measure**		
32. Support for recycling water – greywater reuse	• Drinking water – **significant measure** • E.coli – **moderate value measure**		
33. Stormwater outlets	• Sediment & Ecosystem health – **moderate value measure**		

Action	Problem this Action Will Address Likely effectiveness	Detailed explanation/discussion	Priority Areas
34. More comprehensive waste management centre that promotes a circular economy			
35. Rain gardens to treat road runoff capture debris and filter before waterways	• Sediment & Ecosystem health – **moderate value measure**		
36. Review of septic tanks across the communities	• E.coli – **moderate value measure**		
37. More sustainable energy system			
38. Loisels bush plan			
39. Ūawa settlement plan for sustainable water supply and wastewater management			
40. Community restoration			

Additional Actions to Consider

The following are other measures to discuss which may be useful and/or necessary to improve water quality in the key target areas of sediment, E.coli and ecosystem health.

Activity	Water Quality Attributes and outcomes it benefits	Costs/Benefits/Comment	Is this action appropriate? Are there particular locations it is most suitable?
Settlement Areas			
Restoration of wetland between Tolaga Bay shops and the beach	**Attributes**: Sediment, nutrients, macroinvertabrates, fish **Outcomes**: Ecosystem health, threatened species, mahinga kai, natural form and character.	Helps improve habitat for threatened species and native fish, treatment of nutrients, sediment and heavy metals from runoff Critical is the restoration / maintenance of the connection to the sea (the channel under Solander Street etc.). eDNA tests show that there is good fish habitat in the tributary streams to this wetland.	
Fish passage improvements	**Attributes**: Fish **Outcomes**: Ecosystem health, threatened species, mahinga kai,	Enables fish to live out their life cycle and access currently inaccessible habitat. Could enable future species reintroductions	**Specific sites identified as having fish barriers are**: Tokomaru Bay Waikoko Stream, Te Puka Stream, Mangamate Stream, Waima tributary stream (priority), Waihi Stream **Tolaga Bay**: Hauiti Stream, Tolaga Solander Wetland Stream (priority)
Fish species reintroductions	**Attributes**: Fish **Outcomes**: Ecosystem health, threatened	Where fish have been denied access due to barriers they may not naturally return to that stream even if barriers are removed. Translocation from nearby streams could be	Waima Stream (tributary) Tokomaru Bay has no recorded native fish present

Activity	Water Quality Attributes and outcomes it benefits	Costs/Benefits/Comment	Is this action appropriate? Are there particular locations it is most suitable?
	species, mahinga kai,	possible to reintroduce them to a wider range of habitat.	in eDNA tests, Hauiti Stream only has shortfin eel present. Refer eDNA data attached.
Sealing gravel carparks	**Attributes**: Sediment and dust	Reduces dust and sediment loss from carparks – however can have downsides in terms of increasing the speed of water running off from these areas. Ideally done in combination with installation of stormwater treatment systems.	The Monkhouse/ Mangarara Stream in Tolaga Bay next to the Hauiti Centre of Excellence would do well with a restoration project, and limiting / pre-treatment of contaminants before SW enters the stream Quite diverse fish assemblage, likely due to nice cool groundwater; lots of upstream SW network.
Riparian planting around urban/settlement streams	**Attributes**: Temperature, sediment, periphyton, macroinvertebrates, fish habitat, dissolved oxygen **Outcomes**: health, mahinga kai, trout	Because they are so close to the coast these urban streams often have significant fish populations and can be important areas for inanga spawning. The greatest benefits for ecosystem health and threatened species are gained where there is a mix of planting that increases the amount of shading over the water. This action is most effective for shading smaller	The Solander wetland channel and the Mangarara Stream (Another one is the Hauiti Stream (the bottom end of it, that is in the township).

Activity	Water Quality Attributes and outcomes it benefits	Costs/Benefits/Comment	Is this action appropriate? Are there particular locations it is most suitable?
	fishing, threatened species	streams.	
Constructed wetlands and sediment traps	**Attributes**: Sediment, nutrients, E.coli **Outcomes**: Ecosystem health, mahinga kai, threatened species, swimming	Constructed wetlands can be designed to treat particular nutrients and reduce E.coli levels and sediment traps will reduce sediment runoff.	Solander Street wetland could be more actively managed and even physically modified for habitat improvements (depth), and that would be great for tuna (mahinga kai).
Improvement in on-site	**Attributes**: E.coli, nutrients	Most of the on site wastewater/septic tank systems in Tolaga Bay are old, and some have no records supplied of	Perhaps an on-site wastewater assessment in

Activity	Water Quality Attributes and outcomes it benefits	Costs/Benefits/Comment	Is this action appropriate? Are there particular locations it is most suitable?
wastewater disposal systems	**Outcomes**: ecosystem health, mahinga kai, threatened species swimming	inspection and cleaning. Older/poorly maintained systems can act as point source discharges. Options to address this could range from an inspection and remedial and remedial plan for each system, financial assistance with minor repairs (eg lids and mushrooms, damage in the tank), subsidies for replacement of failed systems or additional rules in the catchment plan requiring mandatory upgrades.	summer in the Arthur Street area, assuming that the septic tanks etc. Are likely to have an impact on the Waiotu lagoon in the dry season.
Detailed water quality investigations of problem areas and attributes.	**Attributes**: variable depending on type of consent **Outcomes**: variable	Faecal source tracking studies is an example of a detailed attribute studies. They may identify the need for further work.	Existing groundwater bores could be tested if the Titirangi Spring is a key water source then this is probably a priority.
Farming Areas			
Native planted riparian environment – or native/willow combination	**Attributes**: Temperature, sediment, periphyton, macroinvertebrates, fish habitat, dissolved oxygen **Outcomes**: health, mahinga kai, trout fishing, threatened species	The greatest benefits for ecosystem health and threatened species are gained where there is a mix of planting that increases the amount of shading over the water. This action is most effective for shading smaller streams. A wider planted area (10m vs 3m) will create better habitat for threatened species, as will incorporating a mix of species that includes tall trees (eg for roosting) and flowering/fruiting plants (for food). Where there is riverbank erosion on the mainstem	

Activity	Water Quality Attributes and outcomes it benefits	Costs/Benefits/Comment	Is this action appropriate? Are there particular locations it is most suitable?
		Ūawa/Hikuwai/ Mangaheia and Maungahauini Rivers the greatest benefits might be gained from a combination of native planting and sterile willow poles. The willow roots grow an average 9m a year so are very effective at erosion reduction. Using native plants like carex, ghania and flax (the grass family) on the waters edge and then bigger species (manuka/kanuka/cabbage trees with spaced out big trees like totara and kahikatea) on the upper banks can be most effective. In this scenario, the willows might act as fodder for stock (cut leaves) for a while, and then be removed (cut and poisoned) once the native plants are well established and holding the banks. If the willows are left however they will have a positive benefit in terms of shading the river in summer.	
Hapū/whanau monitoring, including on farm monitoring by landowners	**Attributes**: easiest for turbidity, temperature (sediment), macroinvertebrates, Phormidium and periphyton. Possible for E.coli, fish and flow. **Outcomes**: Ecosystem health, threatened	Regular hapū/whanau/community monitoring can be a great way of "filling in the gaps" about where problems are and if things are improving as well as just generally improving the understanding of what's going on. The council will probably not be able to have more State of the Environment monitoring sites in the catchment – but the community could monitor some of the tributary streams and track their progress over time.	

Activity	Water Quality Attributes and outcomes it benefits	Costs/Benefits/Comment	Is this action appropriate? Are there particular locations it is most suitable?
	species, mahinga kai, recreational values	This Action would need some Council support (eg Schmack Kits, water quality monitoring probe, training and a place to collect and store data) but is also really empowering in terms of people getting to understand what's going on in their local environment.	
Wetland restoration – small wetlands	**Attributes**: Sediment, nutrients, Also flow **Outcomes**: Ecosystem health, threatened species, mahinga kai, natural form and character.	Wetlands are very effective at filtering contaminants and are often described as the kidneys of freshwater systems. Small wetlands can be very effective at improving on water quality at a local scale. They are also important food locations and habitat for tuna and threatened species. In terms of flow, wetlands are good for holding and slowly releasing water and can have positive benefits both in reducing floods, and mitigating droughts. The Ūawa and Hikuwai Rivers in particular are within what was once a very wetland rich environment – the "high flow loops" would all have been wetlands. **Non water quality benefits**: great for biodiversity, and good option for carbon sequestration.	
"Critical source area" stock exclusion	**Attributes**: Sediment, nutrients, E.coli **Outcomes**: Ecosystem health, mahinga kai, trout fishing,	"Critical sources" are key areas where the contamination of water quality is maximised due to their drainage role. They are often the hollow areas where stock like to hang out and their contribution to negative water quality impacts is massive compared to other parts of a farm.	

Activity	Water Quality Attributes and outcomes it benefits	Costs/Benefits/Comment	Is this action appropriate? Are there particular locations it is most suitable?
	swimming, animal drinking water	Critical sources are often able to be grazed at some times of the year when rainfall is low.	
Stockwater reticulation	**Attributes**: sediment, nutrients, E.coli **Outcomes**: Ecosystem health, mahinga kai, trout fishing, swimming, animal drinking water, farming and production	Stock access surface waterbodies to drink. Stockwater reticulation by itself generally has a fairly low impact on water quality (as cattle and deer in particular like being in wet areas) but is often needed to facilitate stock exclusion from waterbodies. Because of the very high E.coli levels at the monitored sites stock water reticulation from springs or streams with stock exclusion will have animal health benefits.	
Forestry Areas			
Space planted poplars/sterile willows for erosion management	**Attributes**: sediment **Outcomes**: ecosystem health, mahinga kai, trout fishing, farming and production	A great way to support keeping soil on the land, not in the river. Are positive farm production benefits from: • Protection of stock from heat stress (animals under heat stress don't put on as much weight) • Secondary feed (poplar and willow can be cut to feed stock) Food for bees/secondary income source.	
Culverts, drift decks and bridges over streams replacing fords/unformed	**Attributes**: sediment, E.coli **Outcomes**: ecosystem health, mahinga kai, trout fishing, farming and production	Avoids streambed disturbance which remobilises sediment/E.coli as well as reduces riverbank erosion sediment sources and direct deposition of poo by animals crossing. Farming benefits in terms of all weather access.	

Activity	Water Quality Attributes and outcomes it benefits	Costs/Benefits/Comment	Is this action appropriate? Are there particular locations it is most suitable?
crossings for stock and vehicles		Probably aren't any viable options for formed crossings for some types of streams with highly mobile beds.	
Detailed water quality investigations of problem areas and attributes.	**Attributes**: variable depending on type of consent **Outcomes**: variable	Faecal source tracking studies is an example of a detailed attribute studies. They may identify the need for further work.	Mangaheia River has degrading E.coli levels – faecal source tracking could help us understand the causes.
Hapū/whanau monitoring, including in forest monitoring by foresters	**Attributes**: easiest for Turbidity, temperature (sediment), macroinvertebrates, Phormidium and periphyton. Possible for E.coli, fish and flow. **Outcomes**: Ecosystem health, threatened species, mahinga kai, recreational values	Regular hapū/whanau/community monitoring can be a great way of "filling in the gaps" about where problems are and if things are improving as well as just generally improving the understanding of what's going on. The council will probably not be able to have more State of the Environment monitoring sites in the catchment – but the community could monitor some of the tributary streams and track their progress over time. This Action would need some Council support (eg Schmack Kits, water quality monitoring probe, training and a place to collect and store data) but is also really empowering in terms of people getting to understand what's going on in their local environment.	
Wetland restoration – small wetlands	**Attributes**: Sediment, nutrients, Also flow	Wetlands are very effective at filtering contaminants and are often described as the kidneys of freshwater systems. Small wetlands can be very effective at improving on water quality at a local scale. They are also important	

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	Outcomes: Ecosystem health, threatened species, mahinga kai, natural form and character.	food locations and habitat for tuna and threatened species. In terms of flow, wetlands are good for holding and slowly releasing water and can have positive benefits both in reducing floods, and mitigating droughts. The Ūawa and Hikuwai Rivers in particular are within what was once a very wetland rich environment – the "high flow loops" would all have been wetlands. Non water quality benefits: great for biodiversity, and good option for carbon sequestration.	
Constructed wetlands and sediment traps	**Attributes**: Sediment, nutrients, E.coli **Outcomes**: Ecosystem health, mahinga kai, threatened species, swimming,	Constructed wetlands can be designed to treat particular nutrients and reduce E.coli levels and sediment traps will reduce sediment runoff.	
Treatment of runoff from point sources – eg landings, vehicle refueling areas	**Attributes**: Sediment, nutrients, hydrocarbons **Outcomes**: Ecosystem health, mahinga kai, swimming, threatened species	Treatment might be chanelling the water into an armored swale – or something more sophisticated depending on the scale of the point source.	

Activity	Water Quality Attributes and outcomes it benefits	Costs/Benefits/Comment	Is this action appropriate? Are there particular locations it is most suitable?
Field days and workshops to discuss/highlight best practice	**Attributes**: Most **Outcomes**: Most	Keep to helping foresters get to grips with how to implement best practice, do good forestry plans and generally see how things work. A good way to bring the more skeptical on board as well.	